



**BROADCAST
ELECTRONICS**

www.bdcast.com



MTX Compact

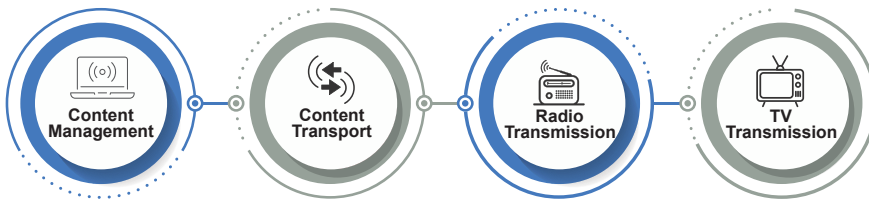
High Efficiency

FM TRANSMITTERS

Overview

Broadcast Electronics has an over 67-year legacy of providing innovative technology to enable radio and TV broadcasters to deliver compelling content to their audiences and create revenue-generating business opportunities. Supporting global innovation and next generation content delivery, Broadcast Electronics embodies a customer first approach to the market from the company's headquarters in Quincy, Illinois in the United States.

Customer focused solutions from Broadcast Electronics are built on four technology areas:



AudioVault is BE's award-winning suite of Content Management software enabling live and automated program creation and playout. Flexible enterprise class solutions for on premises, in the cloud and distributed complete radio station operations. Simple to use and cost effective.

The Radio Experience – TREplus is the original and most powerful comprehensive software platform that empowers radio operators to increase engagement and drive new revenue with their listeners by managing the delivery of visual content to accompany the audio they are delivering.

The **Marti** range enables content Transport, powering audio contribution and distribution for point-to-point (STL) wireless connectivity.

Radio Transmission is the heart of Broadcast Electronics with multiple product lines to support AM and FM transmission. The BE MTX line of HD Radio® ready FM transmitters provides superior sonic quality and low operating cost. The BE ETX analog FM transmitters deliver compact, efficiency in a redundancy-equipped package. The BE AMX line of transmitters provides rugged, reliable, energy-efficient peace of mind for your AM radio station.

Broadcast Electronics' complete line of low and high-power **TV transmitters** are designed around a software defined core exciter that can cover all the global analog and digital TV standards. With solutions covering UHF and VHF frequency bands and air-cooling configurations, BE can craft the right solution to meet your technical, budgetary, and operating requirements.



BROADCAST ELECTRONICS

Broadcast Electronics is a global technology company dedicated to driving innovation in broadcast technology providing market leading solutions for software-based content management, Radio & Television transmission, and scientific applications of radio frequency devices.

Broadcast Electronics, has been providing high-tech solutions for broadcasters for more than 67 years in over 170 countries. All of our products and services come from a heritage of creativity and innovation unmatched in the industry, focused on developing innovative solutions for customers problems.



Every major innovation that shaped modern radio originated in Quincy, and it is here that BE products are designed, supported, and manufactured today.

Our facility in Quincy employs the latest instruments for research, new product design, prototype fabrication and testing.

We take advantage of the best practices of automated production, adding human attention to detail to ensure every product that leaves our factory meets or exceeds its published specifications.

MTX FM Transmitter Series

The Broadcast Electronics MTX Compact continues the legacy of reliable, efficient, and performance-leading FM and the new MTX takes it to the next level. The MTX combines the best sounding exciter – BE's STX, expanded software and content options with high efficient ultra reliable RF amplifiers and energy efficient power supplies to provide rock solid operation all backed by BE's US based service and support. Analog — HD Radio® - DRM+ the MTX has you covered!

The Best Audio Quality—Ultimate Reliability

The MTX is designed to deliver a high-performance, cost-effective solution with powers up to 1,000 watts. Leveraging the highly efficient and compact RF technology of the latest ruggedized LDMOS RF devices the MTX provides the efficiency, compactness, and reliability you have come to expect from the legacy of STX.

We didn't stop there, drawing from BE's decades of providing the best-sounding FM exciter on the market, we incorporated a digital direct-to-channel FM modulator and ultra-reliable highly efficient power supplies to deliver the maintainability and robustness our customers have come to expect with the performance and reliability BE is known for.

MTX's powerful control system provides extensive monitoring, logging, and control capabilities with fast-acting protection for maximum reliability. A front panel LCD screen, navigation buttons, and bright LED indicators allow easy review, setup, and diagnostics. The RJ-45 port allows you to connect to the all new HTML-5 responsive display, intuitive and powerful GUI and SNMP from anywhere in the world. The standard parallel GPI/O interface provides connectivity to a traditional remote-control system.

Powerful Audio Content Gateway

Compelling content is the key to your stations success, and the most important ingredient to any transmitter. With MTX BE introduces Content Gateway a flexible way of managing content at your transmitter site. Content Gateway employs powerful software to help you process, transport and monitor your audio seamlessly all inside your transmitter eliminate the cost and complexity of costly outboard boxes. MTX can host a wide range of software tools to help you streamline and simplify your operations.

Stereo Tool Audio Processing: BE and Themio teamed up to deliver a proven powerful FM audio processor which provides a simple low-cost way to add world class Stereo Tool audio processing and HLS streaming input to any MTX transmitter. With a wide array of options Stereo Tool can give you as little or as much control as you want to tailor the sound of your station in even the most competitive markets. Stereo Tool also enables the ability to transport the audio to your MTX transmitter using the robust HLS streaming delivery protocol, ideal for leveraging cost effective IP connections with solid performance—lowering your program distribution costs.

Micro MPX IP Codec : Simplify your distribution keeping the processor at the studio, and send the FM composite baseband signal over low cost IP networks. Micro MPX breaks the bandwidth barrier by supporting low—320 kbps and even lower transport for FM composite signal with full fidelity. Micro MPX is the defacto standard for composite distribution—Stereo Tool and most major audio processor have options for Micro MPX encoder built inside to eliminate costly outboard IP codecs.

Flexible Expansion: The MTX processing platform is designed to integrate with market leading workflow tools so you can take advantage of innovation and interoperability without getting locking in to brand specific protocols.

Put These Powerful Capabilities to Work for You

- Ultra compact size and low weight
- Direct-to-channel digital modulator
- HD Radio® & DRM+ operation
- Outstanding Audio performance
- High efficiency delivers up to 75% AC to RF Efficiency
- Shippable via UPS or Fed Ex for fast low cost delivery
- Optional Stereo Tool for powerful cost effective audio processing
- HLS Streaming input via Stereo Tool
- Optional Micro MPX for robust IP STL transport
- Optional Inovonics® FM & FM-HD Radio® off air receiver for translator applications – includes extensive monitoring capability & live stream
- Built-in digital Stereo Generator
- Built-in RDS Generator built-in with Dynamic text capability
- Removable front panel grill and washable filter for clean operation
- Multiple Program Inputs with silence sensor and auto failover
- Single Frequency Network capable with built-in Audio delay
- N+1 Capable, Main/Alternate Capable
- Integrated modulation metering eliminates outboard modulation monitor
- Seamless operations over a wide range of voltages and power stability
- Run at maximum power up to 1.5:1 VSWR w/proportional foldback
- IP Connectivity with HTML5 GUI for anytime, anywhere access
- Comprehensive event log stores 5000 events—simplifies troubleshooting
- FSK Identifier for translator operation

Digital Modulator—The Heart of the Transmitter

Building on BE's long legacy of superior-sounding FM exciters, MTX continues the tradition with a state-of-the-art Digital Direct to Channel (DTC) modulator of unrivaled precision and sonic clarity inside every transmitter.



The MTX features a digital exciter that can produce the best AES audio but is also capable of broadcasting in HD or DRM+. Flexible audio input options including Analog, AES composite AES 192 digital compose all with configurable automatic switch over to a back up source. MTX boasts plenty of inputs for SCA's, RDS plus integrated digital stereo generator and an RDS generator. There is even Built-in switching to support dual exciters.

Advanced Monitor and Control Capability

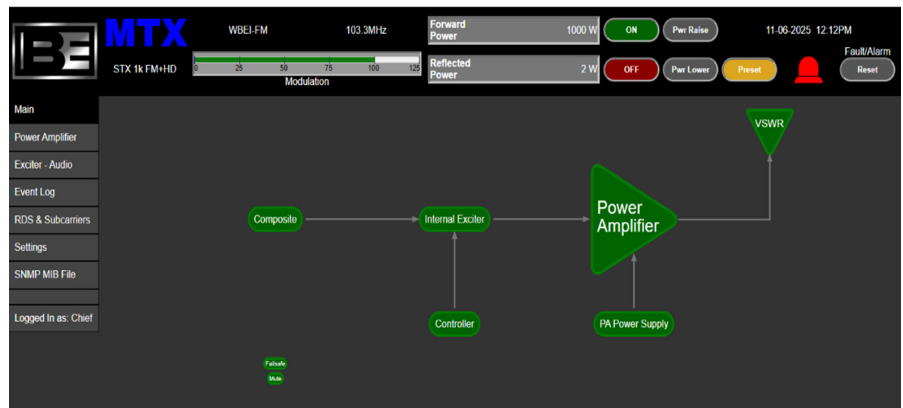
MTX features an all new powerful yet simple-to-use browser-based HTML-5 graphical user interface for control and monitoring of the transmitter anywhere in the world. Responsive design ensures it is easy to read and use on a wide range of devices tailoring the display to best match your device—large PC monitor to a smart phone. Extensive TCP/IP network connectivity via integrated RJ-45 connection allows the transmitter to be securely connected to any IP network. Integrated multiuser multilevel password protection ensures only authorized operation on your network.

MTX also supports a robust SNMPv3 – (Simple Network Management Protocol) interface for easy connection with a wide array of powerful software network manager systems and popular transmitter remote controls. The entire transmission system can be controlled and monitored using the standard published MIB protocols.

MTX provides a comprehensive event log that captures all transmitter-related activities, operations, and faults storing the 5000 most recent activities. This allows for detailed diagnostics and simplified routine maintenance.

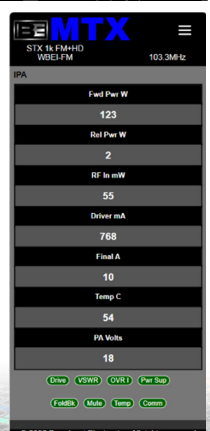
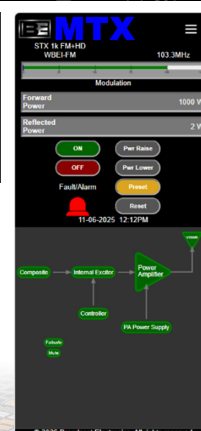
Remote Monitor and Control interfaces supported include:

- Popular parallel interface to panels and legacy remote-control systems
- Automated Alarms and notifications via Email or SMS text
- SNMP connectivity for alerts, monitoring, and control Web GUI via ethernet network connection RJ-45 (10/100Base-T) with TCP/IP protocols.



The screenshot displays the MTX web interface with the event log. The table shows the following data:

Time	Event	User	Action	Message
2025-04-04 12:12:00	System	Chief	Start	System rebooted successfully
2025-04-04 12:12:00	Warning	Memory	High memory usage detected	
2025-04-04 12:12:00	User	John	Login	User logged in successfully
2025-04-04 12:12:00	Warning	Memory	High memory usage detected	
2025-04-04 12:12:00	Warning	Memory	High memory usage detected	
2025-04-04 12:12:00	Warning	Memory	High memory usage detected	



Audio Software Options

Stereo Tool - Powerful Audio Processing, Pleasing Price



Stereo Tool is a software-based audio processor which offers outstanding audio quality and comes with many unique features. It is used by over 3000 FM stations ranging from small local stations to 50 w to 100 kW stations and major nationwide networks.

Complete FM processing including AGC, compression, equalization, limiting, clipping, high performance stereo generator, composite clipping and much more. Complete details at StereoTool.com

Stereo Tool on your MTX transmitter simplifies the workflow allowing you to take full advantage of the great sounding MTX exciter technology for a competitive edge in your market. Complete control with presets, and expert level adjustment all via the HTML5 browsers interface with security. Stereo Tool can even accept HLS streaming input to simplify your distribution.

Micro-MPX-simplifies transporting audio over standard IP networks

MicroMPX is our STL (studio-to-transmitter link) codec. It transports a full FM composite MPX signal, including pilot and RDS, at bitrates from 320 kbit/s, with

perfect peak control. Using MicroMPX you can generate your signal completely in your studio and easily distribute it to all your transmitters.

MicroMPX is a codec that is specifically designed for FM. It doesn't cause typical lossy codec artifacts (pre/post ringing, watery sound), and perfectly maintains peak control, even when using composite clipping. This eliminates the need to have an expensive high end audio processor or stereo/RDS generator at the transmitter site.

MicroMPX has built-in error correction for connection drops, and supports dual paths (you can send the same data over multiple connections, as long as any of them arrive the audio keeps playing). If everything fails, there's a built-in backup audio player.

You can originate your distribution with Micro MPX by simply using the software based encoder at your studio, or you can directly output MicroMPX from many popular audio processors as well as Stereo Tools used at your studio.

SFN: GPS synchronization: Identical MicroMPX receivers that are fed by the same encoder in a Single Frequency Network (SFN) with multiple transmitters that are broadcasting at the same frequency with overlapping reception areas and use GPS synchronization of the decoders and MTX transmitters to delivery audio synchronized to within less than 1 μ s.



BE MTX transmitters are designed with digital radio in mind, supporting both HD Radio® and DRM+ operation. We provide the flexibility of changing transmission between analog only mode and analog+ HD, all digital or even DRM broadcasts.

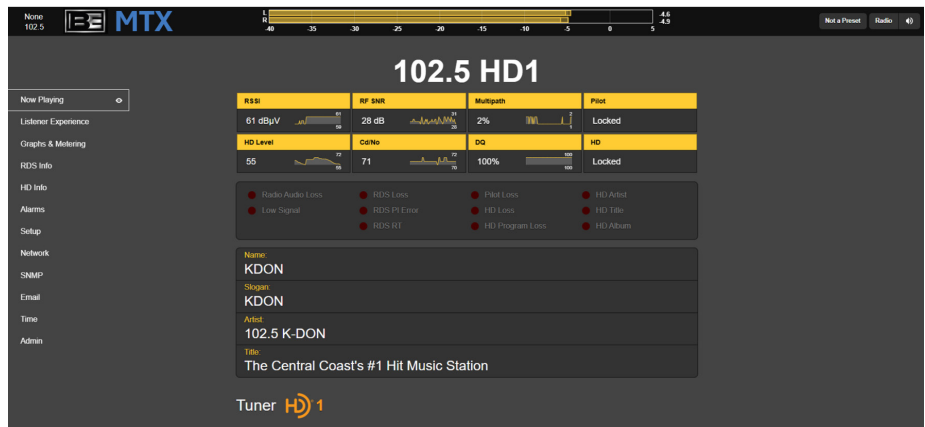
Digital Ready – just add an external HD Radio® or DRM signal generator when you are ready to make the change.



MTX Off Air Tuner Module Option

FM & HD Radio® Capability for Translator or powerful monitoring

BE has partnered with Inovonics to bring powerful off air receiving capabilities to the MTX platform. Inovonics brings their award-winning tuner technology featuring sensitive SDR-based tuner, high-quality streaming for multiple remote listeners, advanced metering for off-air reception, extensive alarm options, 2 levels of password protection, and much, much more.



Need to replace an aging translator, or build a new one, just add the MTX tuner module to any MTX transmitter to create a simple to use translator system. Need remote monitoring of a distant site, each MTX tuner module features web-enabled tuner for remote signal monitoring, making it an ideal confidence monitor for any MTX remote transmitter or translator sites - allowing radio engineers and broadcasters to monitor their sites from any Web-enabled device such as - PC, Tablet, or SmartPhone.

MTX Tuner Module Features

- Monitor your off-air analog-FM or HD Radio® signal (HD1 – HD8) from any remote location. Tunes all current FM frequencies: 76.0MHz-108.0MHz
- Off Air reception of FM & HD1-8 channels
- Up to 30 Station Presets
- Full dynamic browser support of all operating features, including audio streaming through the dynamic Web Interface
- StationRotation™ - monitor all station presets by 'round robin' sequencing, each with its specific alarm parameters. Select which presets to include in Station Rotation.
- Security Access - Password protection with two access levels. // Remote firmware updates. // User Manual is available on the Web interface.
- Easy setup and operation, remote control of all operational features, full SNMP support and simple remote firmware updates when issued.
- HE-AACv2 audio streaming via the dynamic Web interface for up to 10 simultaneous listeners; independent UDP streaming for 'skimmers' or audio loggers.
- RF signal, program audio and RDS alarms with logging, plus instant alarm text and email messaging to alert designated personnel immediately.
- Decodes all RDS groups; shows RDS block error rate and RDS group statistics.
- Accurate remote Web-interface program audio level metering.
- Alarms: Off-Air Audio Loss, Low Signal, Pilot Loss, HD Loss, RDS PI Error, RDS RT Not Updated; all alarms have adjustable parameters. Alarms are logged and are able to send text or email messages instantaneously.
- Listener Experience Data via Web
- Real-Time Clock
- Graphs & Metering
- Signal Measurements
- Split mode audio HD in L analog in R

Tuner Module Specifications

- Tuning Range: 76.0MHz–108.0MHz in 100kHz steps.
- Antenna Input: 75-ohm (F)
- Receiver Sensitivity: 10µV for 50dB monaural SNR Audio Response: ±1dB, 30Hz–15kHz; selectable 75µs/50µs de-emphasis
- Network Connection: LAN (RJ45) jack accepts universal TCP/IP connection to Local Area Network, and via router to the Internet. Full SNMP support and internal MIB file.

MTX Front & Rear Panel



- 1 Cover for removable washable air filter
- 2 LCD display
- 3 Menu navigation and select
- 4 Status Indicators
- 5 RF output connector (7-16 DIN female)
- 6 RF Sample—Mod Monitor
- 7 10mHz & 1PPS inputs
- 8 Remote Control—GPIO
- 9 BE expansion interface
- 10 LAN (RJ45) for management (Web server, SNMP, etc.)
- 11 CAN Bus
- 12 Processor L/R & output
- 13 AES/EBU -& AES 192 input (XLR connector)
- 14 Analog input L/R (2 XLR connectors)
- 15 Composite, SCA 1&2, RDS inputs
- 16 19kHz out
- 17 Exciter RF out
- 18 PA RF in
- 19 LAN (RJ45) for Audio— Micro MPX
- 20 USB

Specifications

General	
Modes	Analog FM, HD Radio®, DRM
Analog Input	2x XLR female (Balanced impedance 600Ω/10KΩ selectable)
AES	XLR female (Balanced impedance 600Ω/10KΩ selectable)
MPX/SCA/RDS input	2x BNC female (Unbalanced impedance 50Ω/10KΩ selectable)
AC Input Voltage	185—264Vac, single or three phase, 47 Hz to 63 Hz
Dimensions (W x H x D)	19 x 2 RU (3.5) x 22 inches 48 x 9 x 56 cm
Weight (LBS / Kgs)	25 / 11
Environmental	
Temperature	-10°C to +50°C
Altitude	10,000 ft (3,048 M) at 60 Hz; 7,500 ft (2,286 M) at 50 Hz
Humidity	0% to 95% (non-condensing)

Specifications

RF Specifications

Transmitter Type	Solid State VHF FM transmitter for analog FM: 87.5 MHz to 108 MHz; 10 kHz increments			
	MTX 25	MTX 100	MTX 500	MTX 1
Output Power	5 W -30W 50 ohms— 7-16 DIN female	20 W -125W 50 ohms— 7-16 DIN female	50 W -550W 50 ohms— 7-16 DIN female	100 W -1,100W 50 ohms— 7-16 DIN female
Efficiency	Up to 75% typical AC to RF			
Modulation Type	Direct-to-channel digitally generated FM (no analog up-conversion)			
Modulation Capabilities	Standard: ± 75 kHz peak deviation – Max: ± 300 kHz peak deviation			
Spurious and Harmonic	Compliant with ETSI and FCC specification—85dB or better; low pass filter standard			
Asynchronous AM S/N Ratio	Better than -65dB (-75dB Typical) referenced to average peak-to-peak carrier amplitude. 75u Sec de-emphasis)			
Synchronous AM S/N Ratio	Better than 60dB referenced to average peak-to-peak carrier amplitude. 75kHz deviation @400Hz			
VSWR	Normal operation up to 1.5:1 Integrated Proportional Fold-back and Fast Protection			
Regulatory	FCC; IC; CE; BETS-6; IEC 215 Safety			

Audio Specifications

Audio Inputs	AES, L&R analog, composite, SCA/ RBDS/RDS external generator input, SCA audio inputs (2)
Amplitude Response	Composite/ AES: ± 0.03 dB, 30 Hz to 53 kHz; ± 0.1 dB, 53kHz to 100kHz Analog L&R: ± 0.25 , 30Hz to 53kHz
Total Harmonic Distortion + Noise	Composite: 0.005% or less @400Hz, 10-22kHz bandwidth, 75uSec deemphasis. AES/ Analog L/R Stereo: -0.01 typical @ 400 Hz, 10-22kHz bandwidth 75uSec deemphasis
Composite Intermodulation Distortion	0.13% SMPTE (60/7000 Hz, 1:1 ratio), DIM-B: 0.008% (14kHz)
S/N Ratio	AES: 95dB typical below 100% modulation @ 400Hz-22kHz bandwidth, A-weighted filter 100dB typical below 100% modulation @ 400Hz, 10Hz-22kHz bandwidth, CCIR-468 filter Analog: 93dB typical below 100% modulation @ 400Hz, 10Hz-22kHz bandwidth, A-weighted filter 98dB typical below 100% modulation @ 400Hz, 10Hz-22kHz bandwidth, CCIR-468 filter Stereo: 80dB or better below 100% modulation @ 400Hz, unweighted
Stereo Separation	AES: -74dB below 100% modulation @400Hz. Analog L/R: -70dB, 30Hz to 15kHz
IMD Distortion	SMPTE: 0.01% or less (60/7000Hz; 1:1 ratio) DIM-B: 0.005% typical (14 Hz)

All specifications contained in this document may be changed without prior notice

Service and Support

We know that having the right support behind a product is every bit as important as the features and capabilities it delivers. At Broadcast Electronics we are committed to provide you with not only great products and software, but a dedicated team of service experts to help you keep your station running smoothly for years to come.

Training

Broadcast Electronics has long provided training programs for our products to educate and prepare users to operate and maintain them in the most effective possible manner. Training is offered for all styles of transmitters and Audio Vault systems, featuring a mix of instruction with hands-on operation and troubleshooting. Training programs can be crafted to meet your local needs, offered in our facility, at your location, or online. Many of our programs can provide SBE ongoing educational credits.

Warranty

You can rest assured that Broadcast Electronics stands behind its products and services to provide complete satisfaction.

Our products offer a standard set of warranty services that exceed others in the industry.

Repair Service

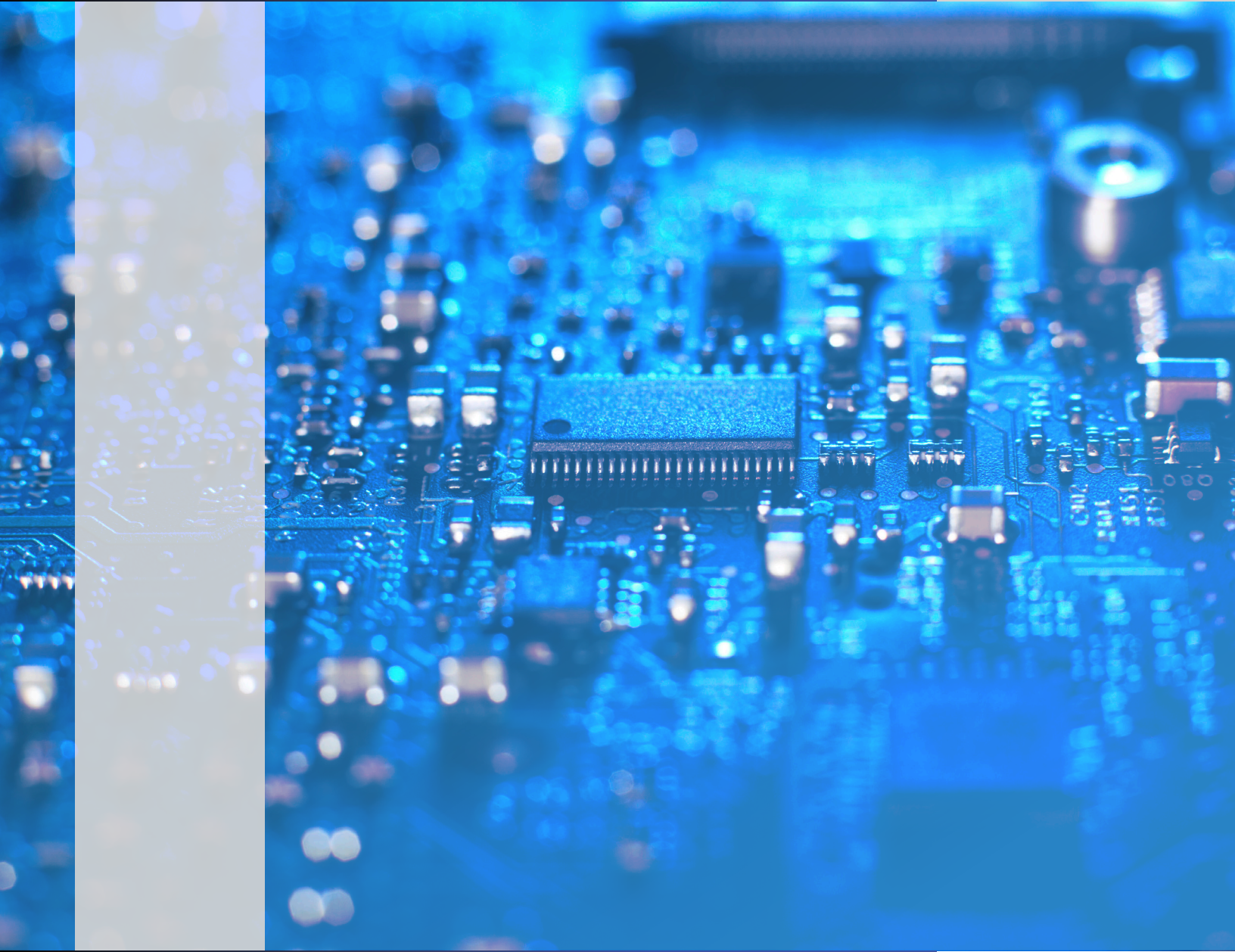
As a leader in providing innovative products and solutions to broadcasters around the globe, Broadcast Electronics understands the need for long life and years of trouble-free service. You can feel secure that if disaster strikes and your products need service, we offer complete repair and refurbishment service to get you back on the air delivering your high-quality programming quickly.

On-Site Service and Installation

Whether you need assistance troubleshooting an existing transmitter or Audio Vault system or require a complete installation of a new one, the global service team at Broadcast Electronics is here to help you get everything up and running quickly. We also offer support for commissioning, on-site setup and testing, or simply providing an extra pair of hands. Whatever your needs, we can assist you.



BROADCAST ELECTRONICS



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