

212K-1, 212L-1 Stereo Audio Consoles



These new Collins stereo audio consoles—the 212K-1 and 212L-1—offer more capability and versatility than any other in their price range . . . plus Collins quality and reliability.

CAPABILITY

These newly designed, fresh appearing, all solid-state audio control systems have more low level



stereo input channels and line and program output channels than any other comparably priced consoles . . . and, both units have monaural reverse cue capability. Through switching, this reverse cue function enables personnel at the remote site to monitor program material originating in the studio.

High quality solid-state components, and advanced techniques in electronic, mechanical, and human engineering are employed in manufacture of these consoles. Front and top panels have full-length piano hinges allowing complete access to all terminal strips, circuit boards, and components.

Front panels are the most functional in the broadcast industry. All controls are convenient, and the non-reflecting, baked enamel finish is easy on the eyes.

VERSATILITY

The 212L-1 has 8 stereo inputs, 6 of which will accept a mike, phono, or high level input. Mixers 7 and 8 are wired for 5



remote lines. The phono preamps are equalized for RIAA reproducing characteristic and strappable for 3-dB boost or cut. The mike preamps have a flat response and use transformer input. Impedances are easily selected by strapping. Both low level and high level inputs are available. The 212L-1 also has a mono output that will drive an AM transmitter while the stereo outputs are

driving an FM Multiplex transmitter. In addition to mono and stereo program outputs, the 212L-1 has two stereo monitor output amplifiers plus the mono reverse cue amplifier. Both consoles have low-impedance stereo headphone outputs (4 to 16 ohms).

The 212K-1 has 4 stereo inputs. Mixers 1, 2, and 3 will accept a mike, phono, or high level input. Mixer 4 is wired for 5 stereo remote lines.

Specifications 212K-1, 212L-1

Power Source

117 Vac $\pm 10\%$, 50 to 60 Hz, single phase

212K-1 Input Characteristics

Three stereo inputs for high level, phono, or microphone.

Five stereo high level inputs to mixer 4.

212L-1 Input Characteristics

Six stereo inputs for high level, phono, or microphone.

Ten stereo high level inputs, 5 to mixer 7 and 5 to mixer 8.

Input Impedances

High level 600 ohms

Microphone 50, 150 ohms (factory strapped for 150 ohms)

Phono 50 K

Input Levels

High level -10dBm to +10dBm

Microphone -65dBm to -50dBm

Phono 7 mv nominal, 100 mv maximum

Monitor -22dBm

212K-1 Output Characteristics

One stereo program output

One stereo monitor output

One stereo headphone output (front panel)

212L-1 Output Characteristics

One monaural program output

One stereo program output

Two stereo monitor outputs

One stereo headphone jack output (front panel)

One monaural headphone jack output

(front panel)

Optimum Load Impedances

Program outputs: 600 ohms balanced

Monitor outputs: 4 to 16 ohms unbalanced

Headphone outputs: 8 ohms to 50 K

Output Levels

Program outputs: +8dBm nominal, +18dBm maximum

Monitor outputs: 3 watts into 8 ohms maximum, per channel per stereo output

Frequency Response

Program outputs:

± 1 db from 1-kHz reference, 50Hz to 15kHz on high level and microphone inputs. RIAA equalization on phono inputs, or 3-dB boost or cut at 15 kHz from RIAA equalization.

Monitor outputs:

± 1.5 dB from 1-kHz reference, 50Hz to 15kHz on high level and microphone inputs.

Distortion Characteristics

Program outputs: Less than 0.75%

Noise: Program noise and crosstalk -120dBm (EIA standard)

Monitor noise and crosstalk -110dBm (EIA standard)

Gain: Low level program 100dB

Ambient Temperature: +15 to +40°C (60 to 100°F)

Humidity: 0 to 95% relative humidity

Altitude: 10,000 feet maximum

Vibration and Shock: Normal handling and shipping

COMMUNICATION / COMPUTATION / CONTROL



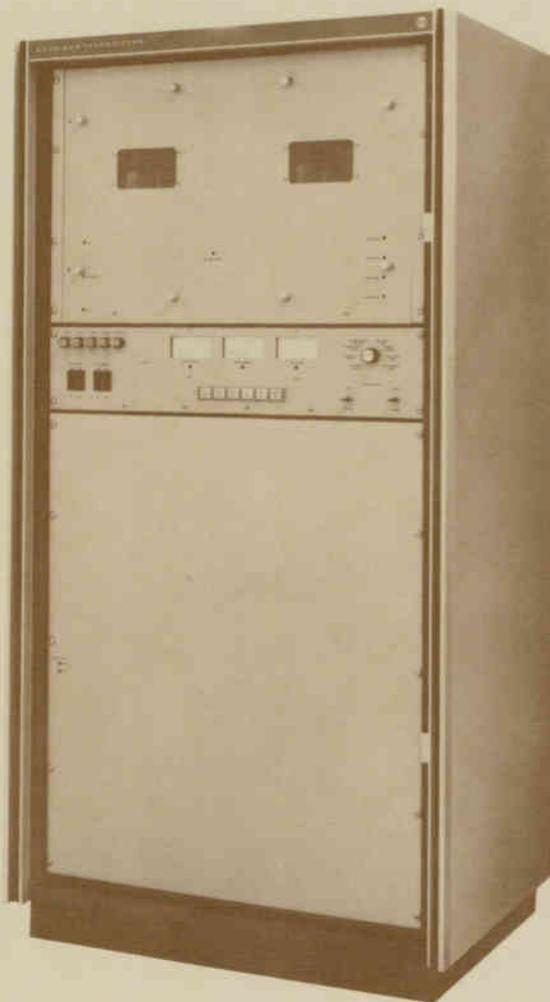
Collins Radio Company, Dept. 400, Dallas, Texas 75207. Phone: (214) 235-7863 (Direct Line).

Collins Broadcast

The Rock

1-KW AM Transmitter

Model 820D-2 with 125% Modulation



820D-2

Superior sound and simplicity of operation make the Collins 820D-2 1-kW AM transmitter one of the most advanced transmitters on the market. The 820D-2 features straightforward circuitry and clean design to give you reliable, high fidelity broadcasting in any

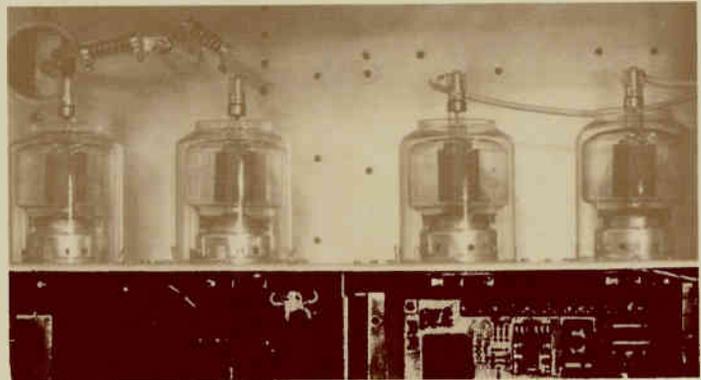
specified frequency from 535 kHz to 12 MHz. Collins tradition of engineering excellence, outstanding for over 4 decades, is built into this 1 kW transmitter. The 820D-2 is available for international broadcasting as the 820D-2HF.

Features

- Solid state power supplies
- Long life operation
- Compact packaging
- Low power consumption
- Clean design
- Safe, reliable control circuits
- Front panel monitoring
- Optional remote control
- 125% modulation capability
- Lowest distortion
- Ease of access
- Field-proven service
- 2 year warranty
- 24 hour service and parts
- Price and financing flexibility

Facts

Plug-in dual oscillator frequency source • Solid state RF driver with single transistor • Class C stage operation in a common emitter configuration • Power amplifier delivers 1100 watts at output terminal • Transformer-coupled modulator / modulation reactor conventionally modulates plates • Bridge neutralization reduces RF intermodulation products • Plate voltage reduction of power cutback to 550 or 275 watts • Bandpass filter output network design has 3-node filter with inductive coupling between nodes • Node Q distribution selection for proper bandpass response and essentially flat response of modulated transmitter output signal



Specifications

RF Output	Power output capability is 1.1 kW into a 50-ohm unbalanced load. Facilities for reduced power operation are provided at either 550 or 275 watts. Other unbalanced output impedances can be supplied on special order.	Hum and Noise.....	60 db below 100% modulation
Emission	Amplitude modulation (A3)	Type of Service.....	Continuous duty, attended or unattended, local or remote control.
Harmonics	73 db below carrier or better	Ambient Temperature Range	-25°C to +45°C
Frequency Range	535 kHz to 12 MHz	Ambient Humidity	Up to 95% R.H.
Frequency Stability.....	±5 Hz, 0°C to +35°C ±10 Hz, -10°C to +45°C ±20 Hz, -25°C to +45°C	Altitude	Up to 2286 m (7500 ft.)
Audio Input	±10 dBm ±2 dB	Power Source.....	208/230/240 volts, 50/60 Hz, single phase.
Response	±1 dB from 50 to 10,000 Hz	Filaments	0.4 kW 90% PF
Distortion	Less than 2% from 50 to 10,000 Hz for 95% modulation	Carrier	2.2 kW 90% PF
Carrier Shift	Less than 3% from 0 to 100% modulation	30% Mod	2.5 kW 90% PF
		100% Mod	3.4 kW 90% PF
		Size	173.6 cm H x 91.1 cm W x 62.6 cm D
			68% in H x 35% in W x 24% in D
		Weight	Approx 500 kg (1100 lb)



Rockwell International

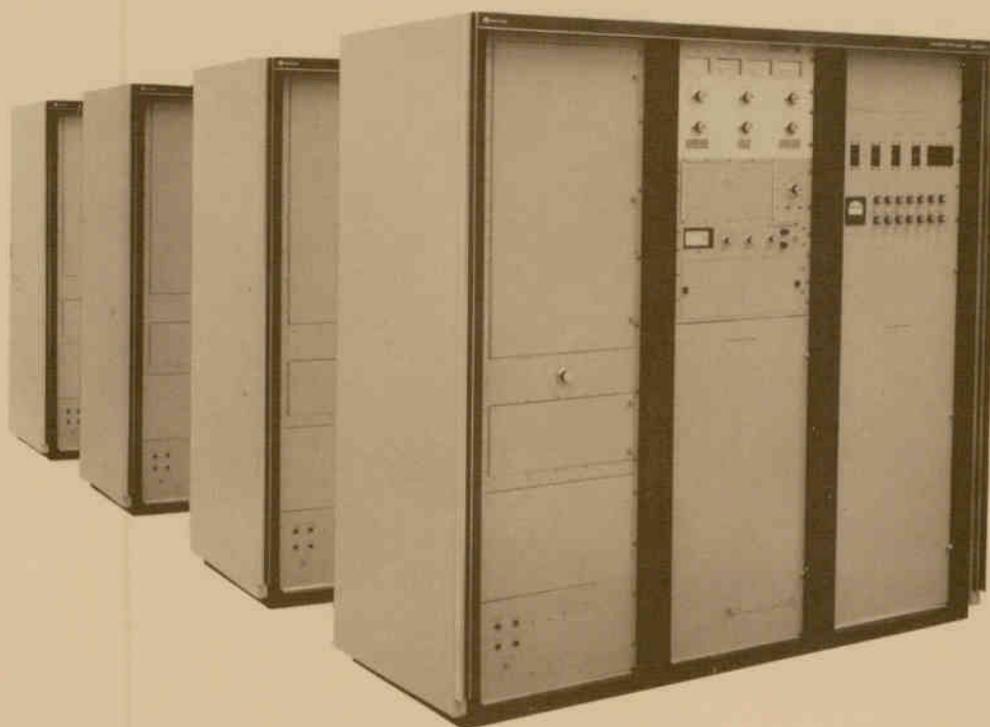
For detailed information contact your local Broadcast Salesman or Broadcast Marketing
Collins Radio Group • Rockwell International • Dallas, Texas 75207 • (214) 690-5424/690-5574.

Collins Broadcast

Generation 4

22.5 KW and 20 KW

For Class B and C FM Coverage



Generation 4

Collins adds another generation in FM Transmitter Leadership with the 831G-2B and 831G-2 transmitters. Designed for Class B or Class C applications where a minimum of antenna gain is desired, the new transmitters can be operated down to 10 kW, if needed. Both transmitters are completely solid state except for two 4CX250B drivers and one 4CX15000A final amplifier. Also in the Collins transmitter package, at no charge, is a complete post installation checkout by a Collins field service engineer. The

engineer is also available to help station personnel with the familiarization process of operating the equipment. This extra service, together with such other benefits as long-life, troublefree operation and a clear sound that adds to the personality of your station, are important reasons why so many businessmen-managers make Collins their transmitter choice. Engineers choose Collins for their engineering excellence; station owners choose Collins because it makes lasting dollars and cents.



831G-2B 22.5 kW



831G-2 20 kW

Put field-proven features to work for you.

- Lowest Guaranteed Intermodulation Distortion
- Highest Stereo Separation
- Automatic Power Output Control
- Automatic Overload Recycling
- VSWR Protection
- Superior Frequency Stability
- Automatic Filament Voltage Regulation
- Overload Indicator Lights
- Front Panel Pushbutton Control
- Superior PA Stability
- Self-Contained Compact Design
- Time-Proven PA Designs
- Conservatively Stated Specifications
- Built-In Remote Facilities
- Access Ease
- Front Panel Monitoring

Specifications

IM Distortion: 0.25% maximum mono; 0.5% maximum stereo

Output Impedance: 50 ohms vswr, 2:1 maximum

RF Power Output Control: $\pm 2\%$ of nominal (automatic)

Frequency Range: 88-108 MHz

Frequency Stability: ± 500 Hz

Modulation Capability: ± 100 kHz

Audio Input Level: 10 dBm ± 2 dB

Audio Frequency Response: ± 1 dB of preemphasis curve

Audio Frequency Distortion: 0.25% maximum mono; 0.5% maximum stereo

Stereo Separation: 50 Hz to 15,000 Hz 35 dB minimum reaching 50 dB at mid range

Harmonic Attenuation: Exceeds FCC requirements

FM Noise Level: 65 dB below 100% modulation

AM Noise Level: -55 dB rms

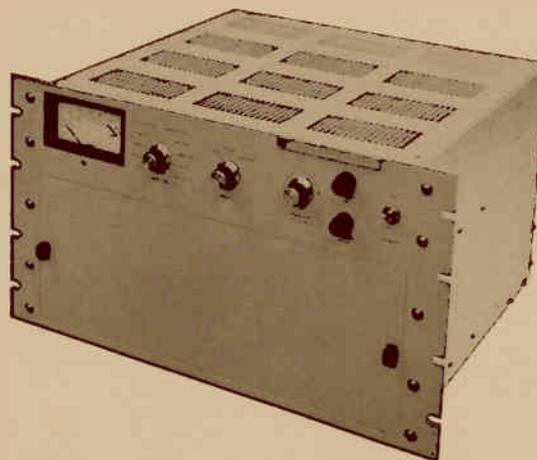
Filament Regulation: $\pm 1\%$ of optimum

Permissible Line Voltage Variation: $\pm 5\%$

AC Power: 3 Phase, all phases floating; 208V, 4-wire, wye recommended

	Output Power	Size			Weight	Power Source 50/60 Hz	Maximum Power Consumption (kVA @ 0.97 pF)
		H	W	D			
831G-2B	22.5 kW	175 cm (69 in)	183 cm (72 in)	71 cm (28 in)	1089 kg (2400 lb)	Transformer taps at 200, 210, 220, 230, 240, and 250 volts; 3 ϕ	39
831G-2	20 kW	175 cm (69 in)	183 cm (72 in)	71 cm (28 in)	1089 kg (2400 lb)	230, 240, and 250 volts; 3 ϕ	35
Phase 4 Exciter	20 W	28 cm (11 in)	48 cm (19 in)	38 cm (15 in)	15 kg (34 lb)	117/234V; 1 ϕ	0.1

Collins Phase 4 exciter has the clearest stereo available plus built-in capability to accept discrete 4-channel broadcasting now



At the heart of **Generation 4** transmitters is the finest exciter available today, the all solid state **Phase 4**. It produces a sound so clean that Collins guarantees specification on IM distortion of only 0.5% in stereo and half that in mono.

Phase 4, a direct FM exciter, uses a phase locked loop AFC to provide typical frequency stability of ± 100 Hz at any modulation level regardless of program material. Complete front

panel metering facilities include a peak reading meter to measure audio level. Field-proven plug-in modules facilitate servicing. **Phase 4** accepts a composite STL input and any of the proposed discrete quad systems. The EIA supervised discrete 4-channel broadcast field tests used a Collins **Phase 4** FM exciter. Make your own comparisons but we believe the clear choice is Collins **Phase 4**.

Generation 4

With Generation 4, you get...

Superior Sound

Collins new **Generation 4** transmitters provide a sound quality never heard before — a signal as clear and uncolored as the capability of most program sources. The **Phase 4** exciter 'transparency' is unequaled in the industry.

For the first time in FM Broadcasting, a manufacturer — Collins — is specifying IM distortion. Conservatively specified at 0.5% in stereo, typical performance is 0.25% and half that in mono.

Quality, Reliability, Long Tube Life

The new **Generation 4** transmitters are the latest editions to Collins 40-year history of quality. Collins trademark of conservative ratings and long life construction is imprinted on the 831G-2B and 831G-2. **Generation 4** features filtered cooling, advanced thermal design, human engineering, safety, rigid field testing, and extremely high inspection standards to produce the best value in broadcast equipment available today.

Proven Field Experience

Each feature of the **Generation 4** transmitters has been tested and proven in the field during actual operating conditions. The simplicity and clean design emphasize ease of operation.

24-Hour Service and Parts

Collins believes in the sales and service combination. When you own Collins equipment, you own 24-hour a day access to our service and parts staff. Our field engineers are ready to help you any time you need them, holidays included.

2-Year Warranty

Our new **Generation 4** transmitters, like all Collins transmitters, carry a 2-year written warranty. At Collins, we believe in the customer's right to an effective warranty service. Our warranty is our pledge.

Automatic Power Control and VSWR Protection

Collins **Generation 4** transmitters monitor forward power and correct the ac input to compensate for any power output variation due to ac line voltage fluctuation. Reflected power is constantly monitored to provide constant vswr protection.

Ease of Service

Collins designed the **Generation 4** transmitters for ready access, plug-in modules, and complete front panel control and monitoring — features that add up to total maintenance ease.

Price and Financing Flexibility

You don't have to wait for something better in the future, you can have something better right now. Collins Broadcast Equipment is priced competitively. You can have the best in **Generation 4** FM transmitters at prices that meet or better industry prices. We also offer you a full line of financing options, including: open account, modified cash purchase, 2- to 5-year note at attractive interest rates, and leasing. We'd like to help you put Collins equipment in your budget.

Contact your local Collins Broadcast Salesman today. For his location or further information call:

Broadcast Marketing
Collins Radio Group
Rockwell International
Dallas, Texas 75207
Telephone: (214) 690-5424
(214) 690-5574

Cable: COLINRAD, Dallas



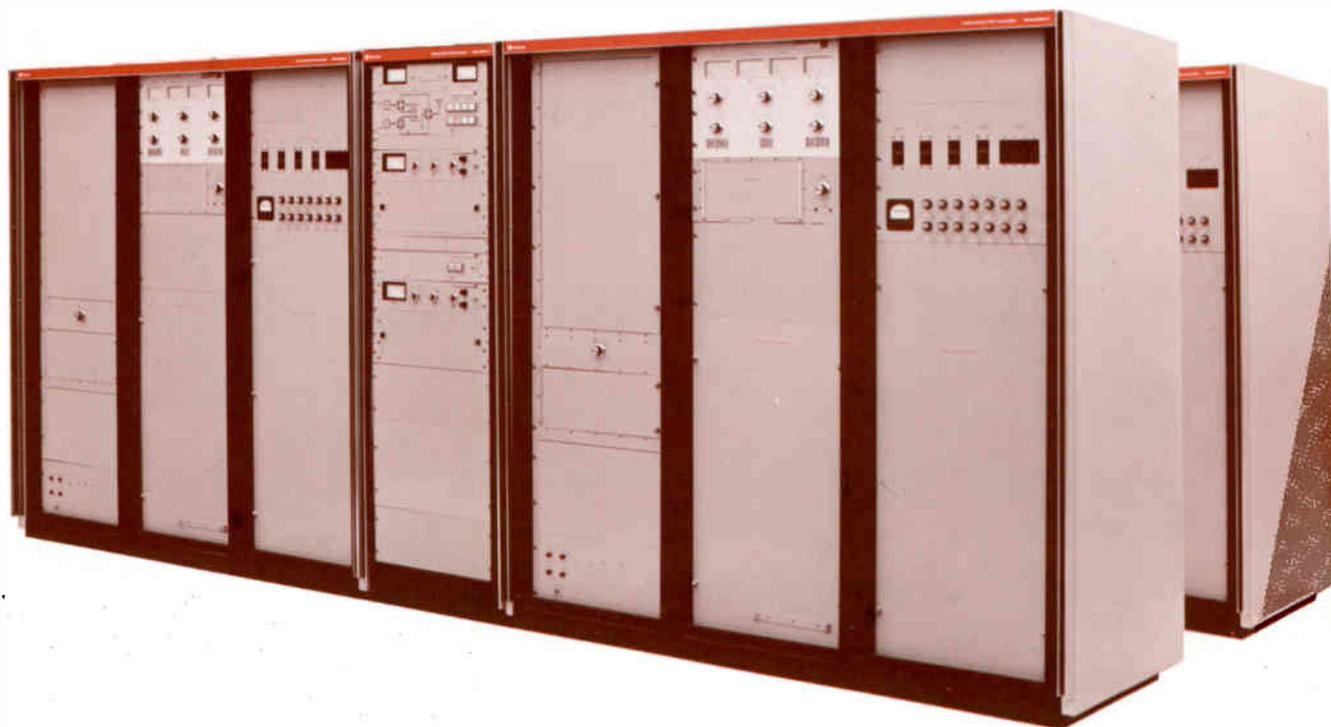
Rockwell International

**Collins Broadcast Division
Announces**

Generation 4
**the Fourth
Generation in
FM Transmitters**



...and they are here



831H-2B (45 kw)
831H-2 (40 kw)

today!

Features

Applicable to all Models

- Lowest Guaranteed Intermod Distortion
- Highest Stereo Separation
- Automatic Power Output Control (except on the 10 watt 831A-2)
- Automatic Overload Recycling
- VSWR Protection
- Superior Frequency Stability
- Automatic Filament Voltage Regulation
- Overload Indicator Lights
- Superior P A Stability
- Completely Self-Contained, compact design
- Time-Proven PA designs
- Conservatively Stated Specifications
- Remote Control Facilities Built In
- Ease of Accessibility
- Front Panel Monitoring
- Front Panel Push-Button Control



831D-2 (2.5 kw)
831C-2 (1 kw)

831G-2B (22.5 kw)
831G-2 (20 kw)
831F-2 (10 kw)
831E-2 (5 kw)

Generation 4

Another Step in FM Transmitter Leadership from Collins Radio

40 KW



The new 40 KW 831H-2 transmitter is the top of the line in Collins **Generation 4** FM transmitters. The 831H-2 is recommended for Class B or Class C stations requiring solid close-in coverage combined with excellent fringe area reception. The 831H-2 allows a lower gain antenna to be utilized while still maintaining 50-100 KW ERP with circular polarization.

The 831H-2 is actually two 831G-2 20 KW transmitters combined and driven by a single **Phase 4** exciter to give a 40 KW output. This dual transmitter design gives redundancy if a failure should occur.

Except for two drivers and one final tube in each PA, the 831H-2 is completely solid state and is type accepted for output powers from 20 to 40 KW. A higher power version, the 831H-2B is available also, on special order, to give a 45 KW output.

Collins will send a field service engineer, at no charge, to give each 831H-2 transmitter a complete check out upon completion of installation. This trained engineer can help familiarize station personnel with the equipment to assure that all systems are operating as designed.

The 831H-2 is available in four configurations:

- No. 1—Basic System (No Switching); one exciter
- No. 2—Basic System (Manual Switching); two exciters
- No. 3—Basic System (No Output Switching); two automatically switched exciters
- No. 4—Automatic Output Switching and two automatically switched exciters

22.5 KW

20 KW



The 831G-2 and 831G-2B **Generation 4** transmitters are designed to be used in Class B or Class C applications where a minimum of antenna gain is desired. The 831G-2B is a 22.5 KW version of the 831G-2.

The 831G-2 and 831G-2B can be operated down to 10 KW if the need arises. Both transmitters are completely solid state except for the two 4CX250B drivers and one 4CX15000A final amplifier.

The 831G-2 contains the new Collins **Phase 4** exciter as well as all of the latest **Generation 4** field proven design improvements. Some of these features are:

- All solid-state automatic power control
- Extremely stable PA circuit design
- Automatic overload recycling
- Single cabinet design for space-saving installation

Every 831G-2 or 831G-2B transmitter customer will receive a Collins field engineer visit after installation is complete to assure accurate installation and checkout, at no charge of course.



10 KW

The new Collins 831F-2 10 KW **Generation 4** FM transmitter is designed to be used in the medium power class B station. Except for a 4CX250B driver and 4CX5000A PA, the 831F-2 is completely solid state. Power output is adjustable from 5 to 10 KW, with output maintained automatically. The 831F-2 is completely self-contained in one cabinet, including the harmonic filter. Front and back panels are removable giving maximum accessibility. All controls and circuit breakers are on the front panel for ease of operation. Lighted push buttons provide safe, logical control and fault monitoring for station personnel.



5 KW

The Collins 831E-2 5 KW **Generation 4** FM transmitter can be operated at power levels from 2.5 to 5 KW, and is completely self-contained, including the harmonic filter. Automatic VSWR protection is included as well as complete remote control capability. Filament voltage is held constant by an automatic regulator. The 831E-2 is contained in the same rugged cabinet that houses the entire high power transmitter line.



2.5 KW

The **Generation 4** 831D-2 is an entirely new 2.5 KW FM transmitter. It provides higher performance, but still utilizes the proven design of its predecessor, the 831D-1B.

The 831D-2 is contained in a single 35" wide cabinet. Its compact design allows a saving on floor space, with even greater accessibility for maintenance than its predecessor. For a station requiring from 500 watts to 2.5 KW, the 831D-2 with the **Phase 4** exciter is the most advanced FM transmitter in existence. Except for the 5CX1500A PA tube, the 831D-2 is completely solid state, and uses IC logic for its control functions. A computer like memory restarts the transmitter after a power failure, eliminating the need for periodic checks of the power source. A built-in battery supply and charger enables the logic circuits to remember their state in the event of a power interruption.



1 KW

For those stations requiring 1 KW of power, Collins has designed the all new **Generation 4** 831C-2. Driven by the 310Z-2 **Phase 4** exciter, the 831C-2 transmitter will deliver a signal that will stand out above the competition. The 831C-2 utilizes automatic filament voltage regulation and automatic power control for unattended operation. An LED display indicates any overload conditions that may occur, and an automatic recycle option gets the transmitter back on the air immediately after an overload interruption. Completely contained within a single 35" wide cabinet, the 831C-2 transmitter is another example of quality construction and dependable performance from Collins.

10 Watt



To meet the demands of the low power educational broadcaster, Collins has added a harmonic filter to the new **Phase 4** exciter to give the finest FM signal available at any price for this type of operation. The 831A-2 transmitter is completely solid state, and will provide up to 10 watts power output. Housed in an optional cabinet, or rack mounted, the 831A-2 will provide many years of trouble-free service.

Transmitter Specifications

Applicable to all Models

IM Distortion: 0.25% max Mono; 0.5% max Stereo

Output Impedance: 50 Ohm, VSWR 2:1 maximum

RF Power Output Control: $\pm 2\%$ of nominal (automatic)

Frequency Range: 88-108 MHz

Frequency Stability: ± 500 Hz

Modulation Capability: ± 100 KHz

Audio Input Level: 10 dBm ± 2 dB

Audio Frequency Response: ± 1 dB of preemphasis curve

Audio Frequency Distortion: 0.25% max mono; 0.5% max stereo

Stereo Separation: 50 Hz to 15,000 Hz 35 dB minimum reaching 50 dB at mid range

Harmonic Attenuation: Exceeds FCC requirements

FM Noise Level: 65 dB below 100% modulation

AM Noise Level: -55 dB rms

Filament Regulation: $\pm 1\%$ of optimum

Permissible Line Voltage Variation: $\pm 5\%$

Size, Weight, and Power Requirements

	Output Power	Size (Inches)			Weight (Lb)	Power Source 50/60 Hz	Max. Power Consumption (KVA @ .97 pf)
		H	W	D			
831H-2	40 KW	69	143	28	4800-5500	H2 thru E2	70
831G-2B	22.5 KW	69	72	28	2400	have transformer taps at 200, 210,	39
831G-2	20 KW	69	72	28	2400	220, 230, 240	35
831F-2	10 KW	69	72	28	2300	and 250 Volts;	21
831E-2	5 KW	69	72	28	2200	3 Phase	14
831D-2	2.5 KW	69	35	24	750	200-250 V; 1 ϕ	4.9
831C-2	1 KW	69	35	24	700	200-250 V; 1 ϕ	2
831A-2	10 W	11	19	15	36	117/234 V; 1 ϕ	0.08
Phase 4 Exciter	20 W	11	19	15	34	117/234 V; 1 ϕ	0.1

Superior Sound

The new Collins **Generation 4** transmitter line provides a sound quality that has never been heard before—a signal that is as clean and uncolored as most program sources are capable of supplying. This "transparency" of the new **Phase 4** exciter is unequalled in the industry.

For the first time in FM broadcasting, IM distortion is being specified by a manufacturer—Collins. Although conservatively specified at 0.5% in stereo, typical performance is on the order of 0.25% and half that in mono.

Quality Reliability Long Tube Life

The new **Generation 4** transmitter line is the latest edition to the 40-year history of quality that Collins has established. The same conservative ratings and long life construction that have been Collins' trademark for 40 years are still being built with pride into the **Generation 4** transmitter line. Filtered cooling air, advanced thermal design, human engineering, safety, rigid testing in the field, and extremely high inspection standards all make up the Collins method of building the best value broadcast equipment available today.

Proven Field Experience

Every single feature of the **Generation 4** transmitter line has been tested and proven in the field under actual operating conditions. Designs are straight forward and easy to understand.

24 Hour Service and Parts

To back up its customers and equipment, Collins maintains a 24-hour parts and service staff. For as long as you own Collins equipment, our field engineers are available to you at any time—any day—holidays included.

Why Buy a **Generation 4** Transmitter

Two-Year Warranty

All Collins broadcast equipment including the new **Generation 4** transmitter line carries a two-year written warranty. Collins has always considered warranty service a very important obligation to its customers. To talk about warranty is one thing—actual performance is another. When warranty service is required—Collins performs.

Automatic Power Control and VSWR Protection

Because the primary cause of power output variation is due to AC line voltage fluctuation, all **Generation 4** transmitters (except the 10 watt 831A-2) monitor forward power and correct the AC input to compensate accordingly. In addition, reflected power is constantly monitored, providing VSWR protection at all times.

Ease of Service

Ready access, plug-in module construction and complete front panel control and monitoring add up to the greatest ease of maintenance in the industry.

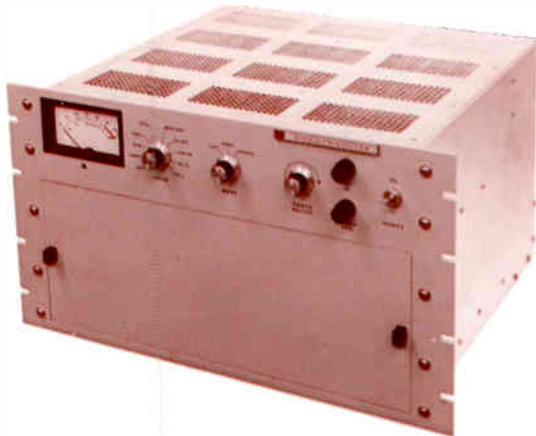
Price and Financing Flexibility

If you are one of those people who has been saying, "I wish I could afford Collins equipment;"—then you are going to be pleasantly surprised when you talk to your Collins Broadcast Salesman. When we say "Collins Broadcast Equipment is priced competitively—and that's where the competition 'ends'"—we mean it. Of course, Collins equipment has always been priced competitively when compared on a value-received basis—but now it's priced competitively period!

Collins has a full line of financing options including: open account, modified cash purchase, two to five year notes at attractive interest rates, and leasing. We will do our best to make owning Collins equipment compatible with your budget.

Introducing the Collins **Phase 4** Exciter

with the clearest stereo available plus
*built in capability to accept discrete
four channel broadcasting now.*

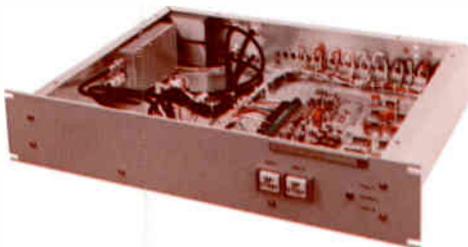


At the heart of all **Generation 4** transmitters is the finest exciter available today, the all solid-state **Phase 4**.

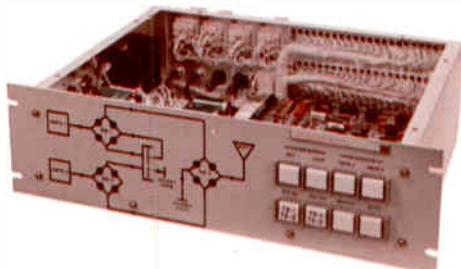
The **Phase 4** exciter has sound so clean it is the only one that dares to give a guaranteed specification on IM distortion. Leading engineers recognize that IM distortion is the principal source of "muddy" sound but only Collins specifies that IM distortion in the new **Phase 4** exciter will be 0.5% or less in stereo, and half that in mono. Harmonic distortion of the **Phase 4** is normally less than 0.25% in stereo and 0.12% in mono. Stereo separation typically runs 50 dB or more at midband, when measured with a properly calibrated monitor such as a Collins 900C-3, Belar FMS-1, or equivalent.

The **Phase 4** is a direct FM exciter that employs a phase locked loop AFC to provide typical frequency stability of ± 100 Hz at any modulation level regardless of program material. It has complete metering facilities on the front panel, including a peak reading meter to measure audio level. Servicing is facilitated by plug-in modules that have been field proven in actual operating conditions. The **Phase 4** will accept a composite STL input and will accept *any* of the proposed discrete quad systems. A Collins **Phase 4** FM exciter was used in the discrete four channel broadcast field tests supervised by the EIA. Specifications are shown in the transmitter specifications table. Compare them with the competition and you'll see that there's only one to choose from—the Collins **Phase 4**.

Optional Automatic Exciter Control



and Automatic Combiner Control



The Collins 377C-1 Automatic Exciter Control provides monitoring and control for two **Phase 4** or similar exciters. If one exciter fails, the 377C-1 automatically puts the standby unit on line. Indicator lamps show which exciter is operating. While in the hot standby mode, an exciter is maintained at 5 to 10% of normal power. When switched on the air it comes to full power in less than 100 milliseconds. Included in the 377C-1 are facilities to switch station monitors to the dummy load for servicing and testing the standby exciter.

The Collins 377D-1 Automatic Combiner Control provides automatic or manual control of two parallel FM transmitters and automatically assures maximum available power to the antenna at all times. If a failure occurs in either transmitter, the remaining transmitter is switched to the antenna, while the defective one is switched to the dummy load through a three-switch combiner. The 377D-1 provides all interlock and sequencing functions and is usable with any pair of Collins FM transmitters operating in a parallel configuration.

An alternate version of the automatic output switching control, the 377D-2, is available to switch any two non-parallel AM or FM transmitters, such as a hot standby or alternate main.

**COLLINS BROADCAST DIVISION
DOMESTIC SALES OFFICES**

DISTRICT 1

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New Jersey, New Hampshire, New York,
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Cockeysville, Md. 21030
Telephone: 301-666-7059

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Telephone: 615-573-9717

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and Virginia (Southern Half)

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DISTRICT 6

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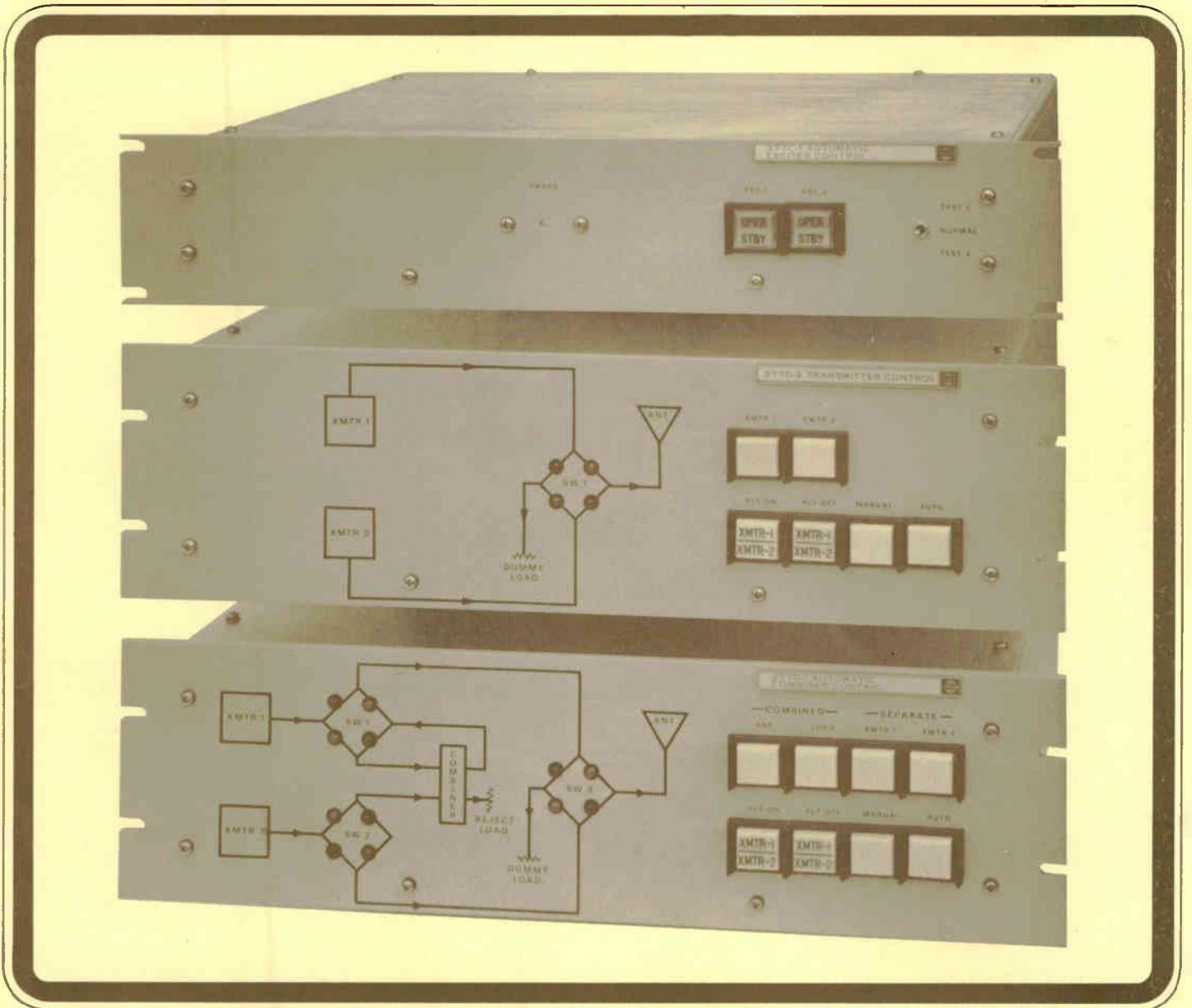
377C-1

Automatic Exciter Control

377D-1 and 377D-2

Automatic Combiner Control

Automatic switching for totally redundant operation.



RF Switching

The Collins 377C-1 exciter control and 377D-1/2 transmitter control are designed to provide both manual and automatic RF switching in both AM and FM transmitter plants. All three units were designed to complement the new Collins **Generation 4** transmitter line, but will work equally well with any AM or FM transmitter that is currently on the market.

377C-1

The 377C-1 Automatic Exciter Control monitors and controls two exciters. In addition, the 377C-1 provides station monitor switching so that the standby exciter may be serviced.

Under typical operating conditions, the 377C-1 switches one exciter to the transmitter to be driven. The second exciter is operated into a self-contained dummy load. In the event of a failure of the primary exciter, the standby exciter is switched on the line in less than 100 milliseconds. When used with the Collins **Phase Four** exciters, the standby exciter is held at 5% of normal power by a bias voltage from the 377C-1 until full power is required.

Front panel controls include Operate/Standby push buttons for the two exciters and a Normal/Test switch for station monitors. The unit occupies 3½" of rack space and uses BNC connectors for RF connections and a barrier strip for control connections.

377D-1

The 377D-1 Automatic Combiner Control provides control commands and monitoring for a pair of parallel transmitters and associated motor-driven coax switches. By monitoring a set of predetermined parameters, the 377D-1 can switch one transmitter directly to the antenna system, thus avoiding the normal 6 db loss of power experienced in a hybrid combiner. If failure in one PA does occur, the down unit is automatically switched to a dummy load for service.

To show system status, a series of 12 LED's and a flow chart provide a quick visual reference at a distance. Eight illuminated push buttons program the 377D-1 as desired. Operating modes include: combined power to load, combined power to antenna, transmitter 1 or 2 to antenna, transmitter 1 or 2 Plate On or Plate Off, and Manual or Automatic modes.

The 377D-1 uses IC logic to provide command and status functions, and contains its own ni-cad power supply across the DC lines to hold memory during a power failure. After a primary power outage, transmitter operation will automatically resume its last mode.

Designed primarily to be used with the Collins **Generation 4** transmitter line, the unit may also be used to control any two parallel transmitters, either AM or FM. The unit occupies 5¼" of rack space and has standard BNC connectors on the back for RF connections, and barrier strips for control connections.

377D-2

The 377D-2 is similar to the 377D-1, except that it is designed to control two transmitters in an alternate/main or "hot standby" configuration. The LED flow chart shows RF routing to an antenna system and a dummy load. As in the 377D-1, the 377D-2 has a ni-cad power supply across the DC lines to hold memory during a primary power outage. Front panel controls include Transmitter 1, Transmitter 2, Plate On, Plate Off, Manual, Automatic.

The 377D-2 is designed to be used with any two AM or FM transmitters of any power level. It occupies 5¼" of rack space and has standard BNC connectors on the back for RF, and barrier strips for control connections.



Rockwell International

For detailed information contact your local Broadcast Salesman or Broadcast Marketing
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