



State of West Virginia
 Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

Request for Quotation

RFO NUMBER
EBA344

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF
SHELLY MURRAY 304-558-8801

S U B J E C T

*709025118 217-224-9600
 BROADCAST ELECTRONICS INC
 4100 NORTH 24TH ST PO BOX 3606
 QUINCY IL 62301

S H I P T O

EDUCATIONAL BROADCASTING
 AUTHORITY
 600 CAPITOL STREET
 CHARLESTON, WV
 25301-1223 304-558-3400

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
05/17/2011				

BID OPENING DATE: **06/16/2011** BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	LS		840-65		
<p>THE WEST VIRGINIA PURCHASING DIVISION, FOR THE AGENCY, THE WEST VIRGINIA EDUCATIONAL BROADCASTING AUTHORITY, IS SOLICITING BIDS FOR A NEW ANALOG RADIO TRANSMITTER PER THE ATTACHED SPECIFICATIONS.</p> <p>TECHNICAL QUESTIONS MUST BE SUBMITTED IN WRITING TO SHELLY MURRAY IN THE WEST VIRGINIA PURCHASING DIVISION VIA MAIL AT THE ADDRESS SHOWN AT THE TOP OF THIS RFQ, VIA FAX AT 304-558-4115, OR VIA E-MAIL AT SHELLY.L.MURRAY@WV.GOV. DEADLINE FOR ALL TECHNICAL QUESTIONS WILL BE 05/31/2011 AT THE CLOSE OF BUSINESS. ALL TECHNICAL QUESTIONS RECEIVED, IF ANY, WILL BE ADDRESSED BY ADDENDUM AFTER THE DEADLINE.</p> <p>CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE COMMODITIES AND/OR SERVICES SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM WITH THE SPECIFICATIONS OF THE BID AND CONTRACT HEREIN.</p> <p>BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THIS CONTRACT IS AUTOMATICALLY NULL AND VOID, AND IS TERMINATED WITHOUT FURTHER ORDER.</p> <p style="text-align: center;">NOTICE</p>						

RECEIVED

2011 JUN 14 A 10:05

STATE OF WEST VIRGINIA

SEE REVERSE SIDE FOR TERMS AND CONDITIONS			
SIGNATURE	TELEPHONE	DATE	
<i>Crisa Oman</i>	585-421-9215	6/13/11	
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE	
Regional Sales Manager	37-1124491		

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

EBA344 10 Killowatt FM Radio Transmitter

The West Virginia Educational Broadcasting Authority operates a statewide Public Radio network. This project will place a new analog only service facility transmitting with 10,000 watts at 88.5 MHz on the FM band in Bluefield, W V. Specifications are included herein.

Note: If IBOC is added at a later date it will be accomplished with high level combining.

1. General Requirements

- 1.1. Transmitter shall be FCC approved
- 1.2. Transmitter shall operate on single phase power
 - 1.2.1. transmitter shall operate with an input voltage of 180 ~ 250 VAC
- 1.3. Transmitter shall be air cooled
- 1.4. Transmitter shall be solid state, no tubes are allowed
- 1.5. Amplifier modules shall be interchangeable, with no tuning or adjustments required
- 1.6. Replacement modules shall not require soldering

2. Operating power

- 2.1. Transmitter shall produce 10,000 watts of RF power at 88.5 MHz
 - 2.1.1. Output power shall be continually adjustable from 100 to 10,000 watts output
- 2.2. Transmitter shall be capable of full power operation for 24 hours a day, 365 days a year.
- 2.3. Transmitter cooling requirements shall be less than 2 tons (24000 BTU)

3. Transmitter shall protect itself from damage from:

- 3.1. High temperature – Temperatures which approach a level that could result in permanent damage to the transmitter shall force the transmitter to reduce power and/or shut down before any damage can occur.
- 3.2. High reflected power (VSWR)
 - 3.2.1. Transmitter shall reduced power incrementally in high VSWR conditions
- 3.3. Loss of RF drive from the exciter
- 3.4. Loss of one side of AC feed

4. Exciter

- 4.1. Exciter shall be provided with transmitter
- 4.2. Exciter shall be frequency agile
- 4.3. Exciter shall be able to operate directly into the antenna in the event of catastrophic transmitter failure
- 4.4. Exciter shall accept the following:
 - 4.4.1. AES/EBU digital input

- 4.4.2. Left and Right Analog input
- 4.4.3. RBDS
- 4.4.4. SCA
- 4.4.5. GPS for frequency reference
- 4.5. Exciter shall have the ability to switch between the digital and analog inputs to allow for an auxiliary audio feed
 - 4.5.1. Exciter shall be able to be switched by external control – for instance, contact closure from remote control

5. Remote Control (Note- West Virginia Public Radio uses the LYNX remote control system statewide, and will use the same system for this installation)

- 5.1. Transmitter shall display alarms and metering both locally and remotely
- 5.2. Transmitter shall provide the following interfaces for remote control
 - 5.2.1. 0-5 VDC
 - 5.2.1.1. voltage
 - 5.2.1.2. current
 - 5.2.1.3. power output
 - 5.2.1.4. reflected power output
 - 5.2.2. Contact closure
 - 5.2.2.1. transmitter on
 - 5.2.2.2. transmitter off
 - 5.2.2.3. transmitter fault
 - 5.2.3. Control by contact closure
 - 5.2.3.1. RF on
 - 5.2.3.2. RF off
 - 5.2.3.3. Low Power
 - 5.2.3.4. Fault Reset

6. Start up

- 6.1. transmitter shall be capable of operation within 20 seconds of application of AC voltage

7. Options

- 7.1. The following options will not be part of the winning bid decision making. The options may or may not be purchased singularly or in total.
- 7.2 Redundant Exciter
- 7.3 Spare parts kit
 - 7.3.1 Kit shall include at minimum:
 - 7.3.1.1 Fuse kit with all fuses of the correct rating for each fuse in the transmitter
 - 7.3.1.2 Spare amplifier module- this can be a sub assembly which is installed in a heat sink carrier frame

- 7.3.1.2.1 If IPA modules are not identical and interchangeable with the PA modules then IPA modules will be provided
- 7.3.2 Other parts recommended by the manufacturer shall be listed separately

8 Warranty

- 8.1 All products shall be warranted for a period of at least one year.
- 8.2 Bidders should state their warranty policy.

9 Support

- 9.1 Vendor should provide toll-free phone support for all items for a minimum of five years.

10. Shipping and delivery

- 10.1 Shipping charges shall be included in the equipment price and FOB destination receiving facility in Beaver, WV.
- 10.2 The receiving facility shall be WSWP-TV studios:
WV Educational Broadcasting Authority
124 Industrial Park Road
Beaver, WV 25813
Attn: Jeremy Scott
304-254-7840

11. Invoicing

- 11.1 Invoices shall be itemized
- 11.2 Invoice shall be sent to:
Tammy Treadway
WV Educational Broadcasting Authority
PO Box 9004
Beckley, WV 25802-9004
304-254-7840

EBA344 Pricing Page 10 KW FM Radio Transmitter

Shipping Cost shall be included in equipment costs.

Item	Description	Price
1	10 KW 88.5 MHz FM analog Transmitter	\$ <u>54,705.00</u>
TOTAL		\$ <u>54,705.00</u>

OPTIONS

The following options will not be part of the winning bid decision making. The options may or may not be purchased singularly or in total.

<u>Item</u>	<u>Description</u>	<u>Price</u>
	Redundant Exciter	\$ <u>9,836.00</u>
	Spare parts kit	\$ <u>2,800.00</u>

Other parts recommended by the manufacturer shall be listed separately

Manufacturer suggestion #1	transfer to local freight company	\$ <u>875.00</u>
Manufacturer suggestion #2	(please see cover letter)	\$ _____
Manufacturer suggestion #3		\$ _____
Manufacturer suggestion #4		\$ _____
Manufacturer suggestion #5		\$ _____

Crisa Omar 6/13/11
 Signature of Vendor Representative submitting bid Date

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (**West Virginia Code §61-5-3**), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor's Name: Broadcast Electronics

Authorized Signature: Chris Oman Date: 6/13/11

State of New York

County of Monroe, to-wit:

Taken, subscribed, and sworn to before me this 13th day of June, 2011

My Commission expires 3/10, 2012

AFFIX SEAL HERE

NOTARY PUBLIC Kathleen M Reynolds
KATHLEEN M. REYNOLDS
Notary Public, State of New York
No. 01RE6182949
Qualified in Monroe County
Commission Expires March 10, 2012

State of West Virginia **VENDOR PREFERENCE CERTIFICATE**

Certification and application* is hereby made for Preference in accordance with **West Virginia Code**, §5A-3-37. (Does not apply to construction contracts). **West Virginia Code**, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the **West Virginia Code**. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

1. **Application is made for 2.5% resident vendor preference for the reason checked:**
 Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or**,
 Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or** 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or**,
 Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or**,
2. **Application is made for 2.5% resident vendor preference for the reason checked:**
 Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or**,
3. **Application is made for 2.5% resident vendor preference for the reason checked:**
 Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or**,
4. **Application is made for 5% resident vendor preference for the reason checked:**
 Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or**,
5. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**
 Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or**,
6. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**
 Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: _____ Signed: _____
 Date: _____ Title: _____

*Check any combination of preference consideration(s) indicated above, which you are entitled to receive.



June 13, 2011

Shelly Murray
Dept. of Administration
Purchasing Division
Building 15
2019 Washington St., East
Charleston, WV 25305-0139

Ref: RFQ no: EVA344

Dear Shelly;

Thanks for the opportunity to provide you with our response to your RFQ no: EVA344
10 Kilowatt FM Radio Transmitter.

The Broadcast Electronics solid state FM10S provides the following key features and benefits:

- All RF modules, main and optional standby IPA's are removable from the front of the unit
- 95% of full power maintained into a normal load with one module removed
- Redundant power supplies keep the transmitter on air even with a failed power supply
- Optional standby power supply provides full power operation with one supply removed
- Full module operating parameters are displayed on the front panel
- Highly developed, highly efficiency cooling system extends transistor life
- True proportional (VSWR) foldback keeps the transmitter on air even in the worst conditions
- Removable and replaceable modules without perceptible carrier interruption
- Amplifier pallets can be replaced in the field without retuning

Our FM10S meets or exceeds the specifications except:

2. Operating Power, 2.1.1: The FM10S output power is continuously adjustable from 5,000 to 10,000 watts. The exciter is continuously adjustable from 25-250 watts.
2. Operating Power, 2.3: The FM10S transmitter cooling requirement is 27,354 BTU.

Attached please find our warranty policy which exceeds your one year period.

Also attached is a brochure and technical specifications.

A manual may be obtained by registering at our www.bdcast.com Web site.

As an option, we have shown the cost if the transmitter needs to be transferred to a local moving company because the destination location is not suitable for tailgate delivery by electronic van lines.

Please contact me with any questions that are developed after reviewing our response.

Best Regards,



Criss Onan
509 Ayrault Rd.
Fairport, NY 14450
Direct phone: 585-421-9215
Direct Fax: 914-206-3906
conan@bdcast.com





Broadcast Electronics Product Warranty (Two-Year Limited)

While this warranty gives Purchaser specific legal rights, which terminate two (2) years from the date of shipment, or sooner as defined below, Purchaser may also have other rights which vary from state to state. Seller hereby warrants all new products manufactured by the Seller against any defects in material or workmanship at the time of delivery thereof, or that develop under normal use within a period of two (2) years from the date of shipment, as such term is defined herein, with the exception of the following parts and/or equipment:

- (a) Transmitter power output tubes shall only carry the manufacturer's or supplier's standard warranty which was in effect as of the date of shipment.
- (b) Computers, computer peripherals, hard disk drives, etc., shall only carry the manufacturer's or supplier's standard warranty which was in effect as of the date of shipment.
- (c) "Resale Equipment", which is defined as equipment purchased from another manufacturer or supplier and resold by Seller shall only carry such manufacturer's or supplier's standard warranty which was in effect as of the date of shipment.
- (d) This warranty extends only to the original user.

Seller reserves the right to repair equipment under warranty with new or refurbished equipment or parts. Seller's sole responsibility with respect to any equipment or parts not conforming to this warranty is to replace or repair such equipment upon the return thereof F.O.B. to the Seller's factory in Quincy, Illinois, U.S.A. In the event of replacement pursuant to the foregoing warranty, only the unexpired portion of the warranty from the time of the original purchase will remain in effect for any such replacement.

The terms of the foregoing warranty shall be null and void if the Equipment has been altered or repaired without specific written authorization from Seller, or if Equipment is operated under environmental conditions or circumstances other than those specifically described in Seller's product literature or instruction manual which accompany the Equipment. Seller shall not be liable for any expense of any nature whatsoever incurred by the original user without prior written consent of Seller. Seller shall not be liable to Purchaser for any incidental or consequential damages for breach of warranty. The warranty provided herein shall terminate at the end of the period set forth above. If the Equipment is described as "used" Equipment, it is sold as is and where is and no warranty applies.

EXCEPT AS SET FORTH HEREIN, AND EXCEPT AS TO TITLE, THERE ARE NO OTHER WARRANTIES, OR ANY AFFIRMATIONS OF FACT OR PROMISES BY SELLER, WITH REFERENCE TO THE EQUIPMENT, OR TO MERCHANTABILITY, FITNESS FOR A PARTICULAR APPLICATION, SIGNAL COVERAGE, INFRINGEMENT, OR OTHERWISE, WHICH EXTEND BEYOND THE DESCRIPTION OF THE EQUIPMENT ON THE FACE HEREOF.

S Series Transmitters

FM Analog Solid State Transmitters

Engineered for Reliability

A solid combination of performance, reliability and ease of service define the S Series solid state FM transmitters from Broadcast Electronics.

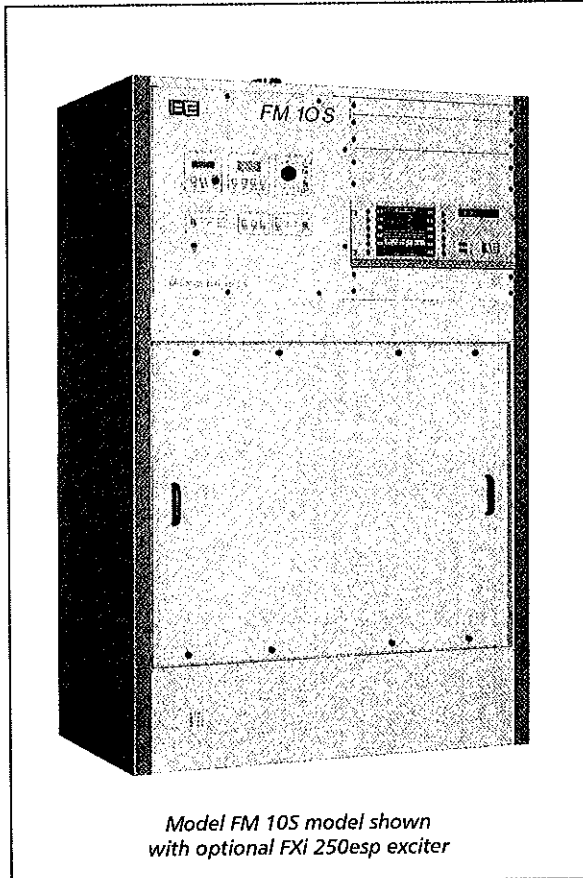
The S Series transmitters perform like no other transmitter in the industry. Featuring true proportional VSWR foldback, the S series provides extensive redundancy and includes a protection system that keeps your signal on the air in the most extreme conditions.

Designed with digital in mind, S Series transmitters will take you into the future, accommodating both current and future versions of HD Radio™ technology. The S Series provides a cost effective and convenient solution, ready for upgrade when you are.

The S Series Solid State FM transmitters represent just one of Broadcast Electronics' many solutions to your radio needs.

Key Features & Benefits

- All RF modules, main and optional standby IPA's, are removable from the front of the unit
- 95% of full power maintained into a normal load with one module removed
- Redundant power supplies keep the transmitter on air even with a failed power supply
- Optional standby power supply provides full power operation with one supply removed
- Full module operating parameters are displayed on the front panel
- Highly developed, highly efficiency cooling system extends transistor life
- True proportional (VSWR) foldback keeps the transmitter on air even in the worst conditions
- Removable and replaceable modules without perceptible carrier interruption
- Amplifier pallets can be replaced in the field without retuning
- Frequency agile, N+1 compatibility provides an automatic back-up for up to 10 signals anywhere in the band
- Optional integral standby exciter and IPA provide automatic change over
- Available with new, optional FXi 60/250esp digital exciter



Model FM 10S model shown
with optional FXi 250esp exciter

Model	Description
FM 10S	10 kW Solid State FM Transmitter
FM 20S	20 kW Solid State FM Transmitter
FMD 40S	40 kW Dual-Combined Solid State FM Transmitter



S Series Transmitters

Solid State Analog FM Transmitters

Improving FM Profitability

Plans to go digital? We're ready when you are!

- Designed with analog and digital in mind, providing an easy upgrade path when the time comes
- Accommodates both current and future versions of HD Radio
- Provides the flexibility of changing transmission between analog only mode and analog+HD mode
- Cost efficient upgrade path with addition of the XPi 10esp Embedded Exporter and plug-in Engine module

Increased efficiency leads to lower operating costs!

- Full on air redundancy provides for low maintenance
- Less heat dissipation reduces cooling and ventilation costs
- Highly efficient cooling system with redundant fans extends transistor life

N+1 system configuration eliminates the need to purchase multiple backups!

- Linear broadband RF modules provide N+1 configuration for any mode of operation
- N+1 configurations are front panel, remote control or IP selectable
- Optional FXi 60/250esp digital exciter selects the frequency, operating mode, audio source and output power, making multiple station operations simple

On air reliability protects your revenue stream!

- All power amplifiers operate independently, keeping you on air even with a failed module
- Repair/replacement of modules can be performed when convenient for you- without taking your station off the air
- In the case of an IPA failure, any PA module can quickly become an IPA module
- Highly efficient, individual redundant power supplies control each amplifier and an optional standby on-line spare results in zero loss of output power
- Full RF module diagnostics provided without the need for additional access cards
- Removable front panel provides immediate access to every major assembly in the unlikely event of a problem
- Minimum to no down time means you'll consistently maintain revenue generation

FM Digital Fidelity!

- Upgradable to Digital FXi 60/250esp exciter for enhanced audio performance
- Digital on-channel RF frequency generation for superior RF and audio operation
- Built-in stereo generator with "look ahead" processor provides the loudest and cleanest audio in the market

Taking the next step is easy with Broadcast Electronics. Get in touch with your sales representative today to discuss solutions that will work for you and your station(s). To contact your BE sales representative, simply visit our website at bdcast.com or call 217.224.9600 and learn more about what BE has to offer.

BE is the premier provider of mission-critical solutions for over-the-air and Internet radio. Our products encompass program generation, audio and data management, interfacility transport and analog and digital (HD Radio and DRM) transmission. They are used daily in more than 10,000 installations in nearly 100 countries.

For more than four decades, BE pioneering developments have set industry standards for innovation and reliability, while providing broadcasters with new options for operational productivity and income generation.

BE is headquartered in Quincy, IL, and is represented worldwide by a network of local representatives.





Broadcast Electronics Inc.

4100 North 24th Street, Quincy, Illinois 62305 USA • Phone (217) 224-9600 • Fax (217) 224-9607
www.bdcast.com • bdcast@bdcast.com

FM 10S : Technical Specifications

RF SPECS

Output Power:

Range:
5 kW to 10 kW

Efficiency:

75% typical @ 10 kW (actual dependent on line voltage and carrier frequency)

VSWR:

Rated power into 1.5:1 maximum, capable of operating into higher VSWR with automatic power reduction, open and short circuit protected at all phase angles

Impedance:

50 ohm

Frequency:**Range:**

87.5 MHz to 108 MHz, tuned to specific operating frequency, exciter programmable in 10 kHz steps

Stability:

±300 Hz, 0° to 50° C

RF Harmonics Suppression:

Suppression meets all FCC/DOC requirements and CCIR recommendations

Modulation:**Type:**

Direct frequency modulation of carrier frequency

Capabilities:

Greater than ±350 kHz

Regulatory:

Meets IEC 215 safety requirements

FM AUDIO SPECIFICATIONS WITH FXI 60 EXCITER

Modes:

Stereo, mono (L+R), L only, R only

Stereo:**Connector Type:****AES:**

Wire – XLR, Optical – Toshiba (TosLink)

L&R:

XLR

Input Level:**AES:**

-2 dBfs for 100% modulation; 16-24 bits (32, 44.1, 48 or 96 kHz typical rates for AES/EBU devices)

L&R:

+10 dBm for 100% modulation into 600 ohm

Impedance:**AES:**

110 ohm balanced

L&R:

600 ohm or 10 kOhm selectable; balanced

Amplitude Response:**AES:**

±0.5 dB, 20 Hz to 15 kHz

L&R:

±0.5 dB, 20 Hz to 15 kHz

THD + Noise:**AES:**

0.05% or better

L&R:

0.05% or better



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www.bdcast.com • bdcast@bdcast.com

Intermod Dist:

AES:

0.05% or better

L&R:

0.05% or better

S/N Radio:

AES:

82 dB or better below 100% modulation @ 400 Hz

L&R:

82 dB or better below 100% modulation @ 400 Hz

Separation:

AES:

50 dB, 20 Hz to 15 kHz

L&R:

50 dB, 20 Hz to 15 kHz

Linear Crosstalk:

45 dB below 100% modulation; 20 Hz to 15 kHz; main to sub and sub to main

Pilot Stability:

±0.3 Hz, 0° C to 50° C

38, 57, 76, 95 kHz Suppression:

80 dB below 100% modulation

Asynchronous AM S/N Ratio:

55 dB below rated power reference carrier with 100% AM modulation at 400 Hz, 75 µs de-emphasis with no FM modulation present

Synchronous AM S/N Ratio:

50 dB below rated power reference carrier with 100% AM modulation at 400 Hz, 75 µs de-emphasis with FM modulation ±75 kHz at 400 Hz

Pre-emphasis:

None, 50 µs, or 75 µs; software programmable

Composite:

Connector Type:

BNC (2); unbalanced, balanced

Input Level:

3.5 V p-p for 100% modulation into 10 kOhm

Impedance:

Balanced: 10 kOhm or 50 ohm selectable, Unbalanced: 10 kOhm

Amplitude Response:

±0.01 dB 20 Hz to 53 kHz; 0.1 dB 53 kHz to 99 kHz

Phase Response:

±0.1° from linear phase; 53 kHz to 100 kHz

THD + Noise:

0.02% or less

Intermod Dist:

0.02% or less

S/N Radio:

85 dB below 100% modulation @ 400 Hz

Asynchronous AM S/N Ratio:

55 dB below rated power reference carrier with 100% AM modulation at 400 Hz, 75 µs de-emphasis with no FM modulation present

Synchronous AM S/N Ratio:

50 dB below rated power reference carrier with 100% AM modulation at 400 Hz, 75 µs de-emphasis with FM modulation ±75 kHz at 400 Hz

Mono:

Connector Type:

XLR

Input Level:

3.5 V p-p for 100% modulation into 600 ohm

Impedance:

600 ohm or 10 kOhm selectable



Broadcast Electronics Inc.

4100 North 24th Street, Quincy, Illinois 62305 USA • Phone (217) 224-9600 • Fax (217) 224-9607
www.bdcast.com • bdcast@bdcast.com

Amplitude Response:

±0.5 dB; 20 Hz to 15 kHz

THD + Noise:

0.02% or less; 20 Hz to 15 kHz

Intermod Dist:

0.02% or less, 20 Hz to 15 kHz

S/N Ratio:

85 dB below 100% modulation @ 400 Hz

Asynchronous AM S/N Ratio:

55 dB below rated power reference carrier with 100% AM modulation at 400 Hz, 75 µs de-emphasis with no FM modulation present

Synchronous AM S/N Ratio:

50 dB below rated power reference carrier with 100% AM modulation at 400 Hz, 75 µs de-emphasis with FM modulation ±75 kHz at 400 Hz

SCA:**Internal:****Input Level:**

+10 dB for 10% modulation into 600 ohm

Impedance:

600 ohm or 10 kOhm selectable

Amplitude Response:

±0.5 dB; 20 Hz to 7 kHz

S/N Ratio:

60 dB or better

Frequency:

20 kHz to 99 kHz; software programmable

Deviation:

2.5 to 10 kHz; software programmable

Injection Level:

2% to 15%; software programmable

External:**Connector Type:**

BNC

Input Level:

3.5 V p-p for 10% deviation

Impedance:

10 kOhm unbalanced

Amplitude Response:

±0.5 dB; 20 Hz to 100 kHz

RDS:**Internal:****Frequency:**

57 kHz

Injection Level:

2% to 15%; software programmable

External:**Connector Type:**

BNC

Input Level:

3.5 V p-p for 10% deviation

Impedance:

10 kOhm unbalanced

Amplitude Response:

±0.5 dB; 20 Hz to 100 kHz

19 kHz:

19 kHz synchronization clock for external RBDS/RDS operation 2.5 V p-p into 50 ohm

FM AUDIO SPECIFICATIONS WITH FX 50 EXCITER

Composite:



Broadcast Electronics Inc.

4100 North 24th Street, Quincy, Illinois 62305 USA • Phone (217) 224-9600 • Fax (217) 224-9607
www.bdcast.com • bdcast@bdcast.com

Connector Type:

BNC (3); un-balanced, balanced, front panel test

Input Level:

3.5 V p-p nominal, for ± 75 kHz deviation

Impedance:

Unbalanced: 10 kOhm, nominal, resistive. Balanced: 10 kOhm or 50 ohm, programmable, jumper selected

Amplitude Response:

± 0.025 dB, 30 Hz to 53 kHz

Phase Response:

± 0.1 degree from linear phase, 30 Hz to 53 kHz

THD + Noise:

0.02% or less

Intermod Dist:

0.02% or less

S/N Radio:

85 dB below 100% modulation @ 400 Hz

Asynchronous AM S/N Ratio:

55 dB below rated power reference carrier with 100% AM modulation at 400 Hz, 75 μ s de-emphasis with no FM modulation present

Synchronous AM S/N Ratio:

50 dB below rated power reference carrier with 100% AM modulation at 400 Hz, 75 μ s de-emphasis with FM modulation ± 75 kHz at 400 Hz

Mono:**Connector Type:**

Terminal Block

Input Level:

+10 dBm nominal for ± 75 kHz deviation @ 400 Hz, adaptable to other levels

Impedance:

600 ohm balanced, resistive, adaptable to other impedances, 60 dB common mode suppression

Amplitude Response:

± 0.5 dB, 30 Hz to 15 kHz; selectable flat, 25, 50, or 75 μ s pre-emphasis

THD + Noise:

0.02% or less

Intermod Dist:

0.02% or less

S/N Radio:

85 dB below 100% modulation @ 400 Hz

Asynchronous AM S/N Ratio:

55 dB below rated power reference carrier with 100% AM modulation at 400 Hz, 75 μ s de-emphasis with no FM modulation present

Synchronous AM S/N Ratio:

50 dB below rated power reference carrier with 100% AM modulation at 400 Hz, 75 μ s de-emphasis with FM modulation ± 75 kHz at 400 Hz

SCA:**External:****Connector Type:**

BNC (3); un-balanced

Input Level:

3.5 V p-p nominal for 7.5 kHz deviation

Impedance:

100 kOhm nominal, resistive

Amplitude Response:

± 0.2 dB, 40 kHz to 100 kHz

MECHANICAL/PHYSICAL

Size:**Unpacked:**

44.5"W x 70"H x 26.5"D (113cm x 178cm x 68cm)

Weight:



Broadcast Electronics Inc.

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Unpacked:

660 lbs. (300 kg) standard, 713 lbs. (323 kg) with standby exciter, IPA and power supply options

RF Output Connector:

3 1/8" EIA flange, 1 5/8" EIA flange optional

ENVIRONMENTAL

Temperature:

-10° to +50° C

Altitude:

7500 ft. (2286 M) @ 50 Hz; 10,000 ft. (3048 M) @ 60 Hz

Humidity:

0-95% Non-Condensing

ELECTRICAL

AC Input Voltage:

196-252 VAC, DELTA (or 340-435 VAC 4 WIRE WYE), 50/60 Hz three phase, single phase input power optional

AC Power Consumption:

Typical at 10 kW RF Power Output: 15.6 kW