

# Input Modules

Models  
BAL2S, BRG1R, MAX1R,  
MIC1S, MIC2S, MIC1X,  
MIC2X, SAX1R, TBL1S,  
TEL1S, TNG1S



## DESCRIPTION

Bogen's advanced plug-in modules provide a wide range of functions to support a variety of applications. These modules support different signal-source requirements, including the ability to interface to balanced and unbalanced high- and low-level inputs, stereo or mono, telco systems, and microphones.

## FEATURES

### BALANCED (BAL2S)

*Stereo, balanced input module*

- Stereo, high-impedance, balanced inputs
- Professional-quality, low noise performance
- Selectable gain of 0 or 18 dB
- Mutable by higher priority modules
- Variable ducking level when muted
- Fade back from mute
- Screw terminal connections

### BRIDGING (BRG1R)

*Daisy chain multiple amplifiers input module*

- Gain/Trim control
- Input signal available at buffered output
- Mute send & receive
- Variable ducking level when muted
- Fade back from mute
- 4 Priority levels
- Buffered output not mutable
- Bus assignable
- RCA input and output connectors

### MONO AUX (MAX1R)

*Unbalanced mono input module*

- Gain/Trim control
- Bass & Treble controls
- Gating w/Threshold & Duration
- Mute send & receive
- Variable ducking level when muted/gated
- Fade back from mute/gate
- 4 Priority levels
- Bus assignable
- RCA connectors

### MICROPHONES (MIC1S, MIC1X)

*Transformer-balanced, low-impedance microphone input modules*

- Gain/Trim control
- Bass & Treble controls
- Noise gate w/Threshold & Duration
- Limiter w/Threshold control
- 24V Phantom power
- Mute send & receive
- 4 Priority levels
- Bus assignable
- Balanced, transformer-isolated
- Screw terminal (MIC1S); XLR connector (MIC1X) models

### MICROPHONES (MIC2S, MIC2X)

*Electronic-balanced, low-impedance microphone input modules*

- Gain/Trim control
- High Cut/Low Cut controls
- Voice Enhancement control
- Noise gate w/Threshold control
- Limiter w/Threshold control
- 24V Phantom power
- Mute send & receive
- 4 Priority levels
- Bus assignable
- Electronically balanced
- Screw terminal (MIC2S); XLR connector (MIC2X) models

### STEREO AUX (SAX1R)

*Unbalanced stereo input module*

- Gain/Trim control
- Bass & Treble controls
- Gating w/Threshold & Duration
- Mute send & receive
- Variable ducking level when muted/gated
- Fade back from mute/gate
- 4 Priority levels
- Stereo-to-mono summing option
- Bus assignable
- RCA connectors

### TRANSFORMER-BALANCED (TBL1S)

*Transformer-balanced AUX input module*

- Transformer-isolated line-level input
- Gain/Trim control
- Bass & Treble controls
- Gating w/Threshold & Duration
- Mute send & receive
- Variable ducking level when muted/gated
- Fade back from mute/gate
- 4 Priority levels
- Bus assignable
- Pluggable screw terminal connections

### TELEPHONE (TEL1S)

*Telephone interface input module*

- Loop start or ground start trunk interfacing (requires external power supply)
- Dry loop interface to paging ports
- Audio-activated paging in dry loop
- Gain/Trim control
- Limiter
- Noise gate w/Threshold & Duration
- Mute send & receive
- 4 Priority levels
- Bus assignable
- Transformer-isolated
- Screw terminal connections

### tone GENERATOR (TNG1S)

*Multiple tone generator input module*

- Select 4 of 8 tones to trigger
- 512 Hz Burst/steady, slow whoop, siren, mechanical bell, Klaxon, night ringer, double chime, & doorbell tones
- Momentary & continuous playback modes
- Screw terminal trigger connections
- Level control
- Microprocessor-controlled operation
- Mute send & receive
- 4 Priority levels

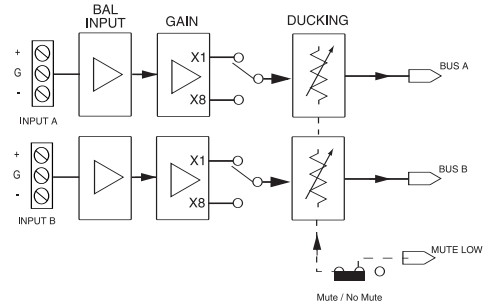


# TECHNICAL SPECIFICATIONS



## Balanced Input Module (BAL2S)

Gain	0 dB (or +18 dB; switch selectable per channel)
Frequency Response	+0/-3 dB, 5 Hz-100 kHz
S/N (20 Hz - 20 kHz)	-100 dBV
Distortion	< 0.005%, 20 Hz-20 kHz
Input Impedance	10k ohms (unbalanced) 20k ohms (balanced)
Ducking (level)	-10 dB to -48 dB
CMRR	> 80 dB @ 1 kHz
Controls	Ducking
Priority	Lowest or none
Connector	6-position barrier strip
Power	±24 V DC
Dimensions	1-3/8" W x 3-1/8" H x 3-1/2" D
Weight	2.8 oz.

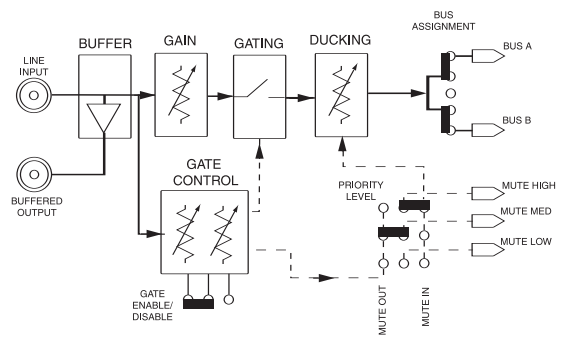


All measurements at 0 dB gain unless otherwise noted.



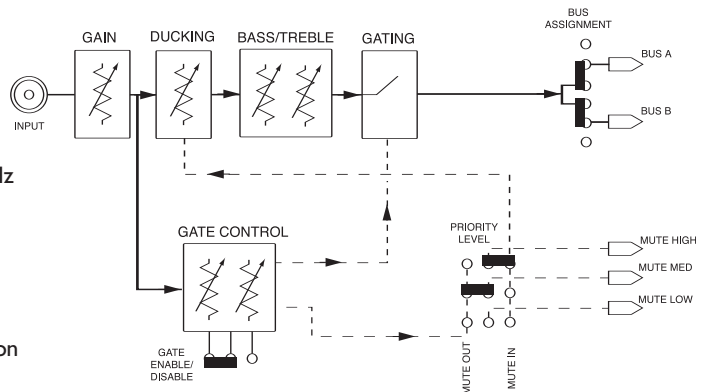
## Bridging Input Module (BRG1R)

Gain	-5 dB to 5 dB
Frequency Response	+0/-3 dB, 5 Hz-100 kHz
S/N (20 Hz - 20 kHz)	-100 dBV
Distortion	< 0.005%, 20 Hz-20 kHz
Input Impedance	10k ohms (balanced)
Output Impedance	200 ohms (pseudo-balanced)
Ducking (level)	-10 dB to -48 dB
Gate Threshold	3 mV to 30 mV
Gate Duration	0.5s to 5s
CMRR	> 60 dB @ 1 kHz
Priority	Four levels
Controls	Gain, Ducking, Gate Threshold, Gate Duration
Connector	RCA Type
Power	±24 V DC
Dimensions	1-3/8" W x 3-1/8" H x 3-1/2" D
Weight	2.3 oz.



## Mono Aux Input Module (MAX1R)

Gain	-20 dB to 6 dB
Frequency Response	+0/-3 dB, 5 Hz-100 kHz
S/N (20 Hz - 20 kHz)	-100 dBV
Distortion	< 0.005%, 20 Hz-20 kHz
Input Impedance	50k ohms
Tone	±10 dB @ 100 Hz & 10 kHz
Ducking (level)	-10 dB to -48 dB
Gate Threshold	3 mV to 30 mV
Gate Duration	0.5s to 5s
Priority	Four levels
Controls	Gain, Bass, Treble, Ducking, Gate Threshold, Gate Duration
Connector	RCA type
Power	±24 V DC
Dimensions	1-3/8" W x 3-1/8" H x 3-1/2" D
Weight	2.6 oz.

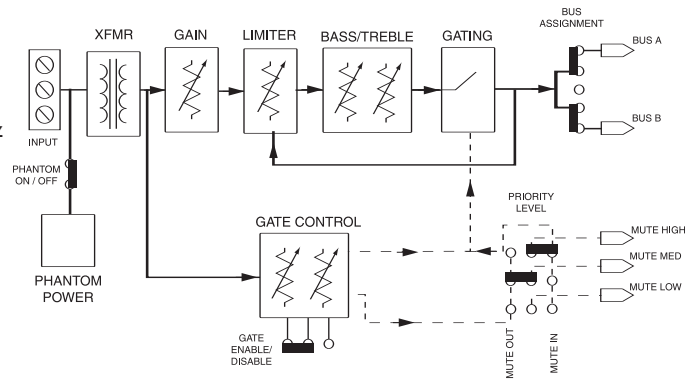


### Microphone Input Module (MIC1S)



Gain 28 dB to 62 dB  
 Frequency Response +0/-3 dB, 10 Hz-20 kHz  
 S/N (20 Hz - 20 kHz) -75 dBV @ 52 dB gain, -127 dBV EIN  
 Distortion < 0.1%, 20 Hz-20 kHz  
 Input Impedance 600 ohms  
 Tone ±10 dB @ 100 Hz & 10 kHz  
 Limit (threshold) -10 dBV to off  
 Gate Threshold 3 mV to 30 mV  
 Gate Duration 0.5s to 5s  
 CMRR > 80 dB @ 1 kHz  
 Priority Four levels  
 Phantom Power 24V DC (defeatable)  
 Controls Gain, Bass, Treble, Limit, Gate Threshold, Gate Duration

Connector Screw Terminal  
 Power ±24V DC  
 Dimensions 1-3/8" W x 3-1/8" H x 3-1/2" D  
 Weight 3.6 oz.

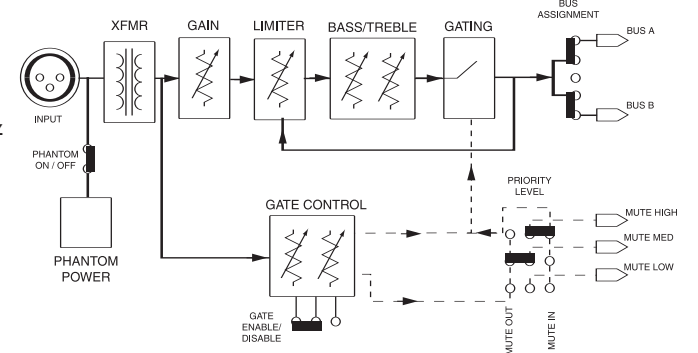


### Microphone Input Module (MIC1X)



Gain 28 dB to 62 dB  
 Frequency Response +0/-3 dB, 10 Hz-20 kHz  
 S/N (20 Hz - 20 kHz) -75 dBV @ 52 dB gain, -127 dBV EIN  
 Distortion < 0.1%, 20 Hz-20 kHz  
 Input Impedance 600 ohms  
 Tone ±10 dB @ 100 Hz & 10 kHz  
 Limit (threshold) -10 dBV to off  
 Gate Threshold 3 mV to 30 mV  
 Gate Duration 0.5s to 5s  
 CMRR > 80 dB @ 1 kHz  
 Priority Four levels  
 Phantom Power 24V DC (defeatable)  
 Controls Gain, Bass, Treble, Limit, Gate Threshold, Gate Duration

Connector XLR  
 Power ±24V DC  
 Dimensions 1-3/8" W x 3-1/8" H x 3-1/2" D  
 Weight 3.6 oz.

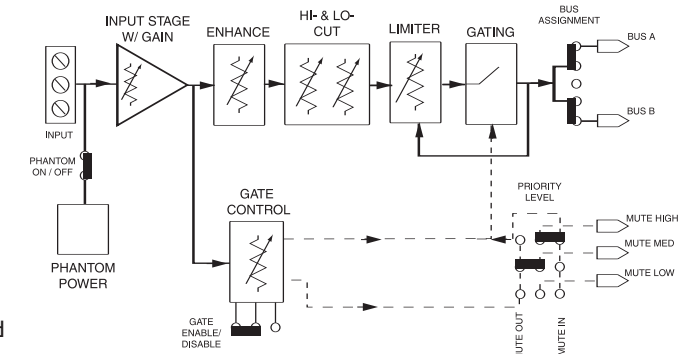


### Microphone Input Module (MIC2S)



Gain 18 dB to 62 dB  
 Frequency Response +0/-3 dB, 10 Hz-40 kHz  
 S/N (20 Hz - 20 kHz) -75 dBV @ 52 dB gain, -127 dBV EIN  
 Distortion < 0.1%, 20 Hz-20 kHz  
 Input Impedance 600 ohms  
 Tone -10 dB @ 100 Hz & 3 kHz (cut only)  
 Limit (threshold) -10 dBV to off  
 Gate Threshold 3 mV to 30 mV  
 CMRR > 80 dB @ 1 kHz  
 Priority Four levels  
 Phantom Power 24V DC (defeatable)  
 Controls Gain, Low Cut, High Cut, Enhance, Limit, Gate Threshold

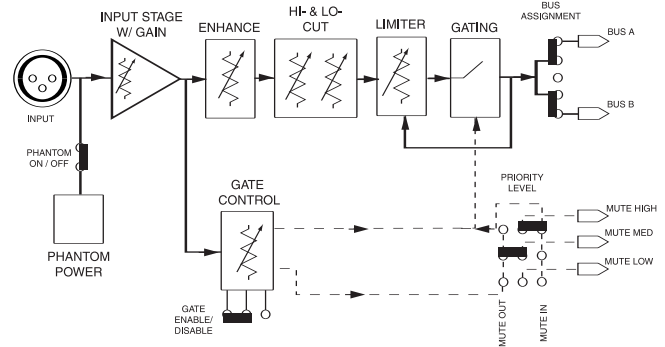
Connector Screw Terminal  
 Power ±24V DC  
 Dimensions 1-3/8" W x 3-1/8" H x 3-1/2" D  
 Weight 2.2 oz.



## Microphone Input Module (MIC2X)



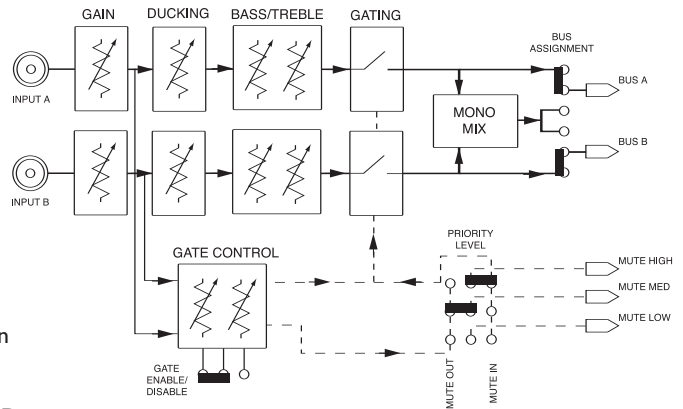
Gain	18 dB to 62 dB
Frequency Response	+0/-3 dB, 10 Hz - 40 kHz
S/N (20 Hz - 20 kHz)	-75 dBV @ 52 dB gain, -127 dBV EIN
Distortion	< 0.1%, 20 Hz - 20 kHz
Input Impedance	600 ohms
Tone	-10 dB @ 100 Hz & 3 kHz (cut only)
Limit (threshold)	-10 dBV to off
Gate Threshold	3 mV to 30 mV
CMRR	> 80 dB @ 1 kHz
Priority	Four levels
Phantom Power	24V DC (defeatable)
Controls	Gain, Low Cut, High Cut, Enhance, Limit, Gate Threshold
Connector	XLR
Power	±24V DC
Dimensions	1-3/8" W x 3-1/8" H x 3-1/2" D
Weight	2.2 oz.



## Stereo Aux Input Module (SAX1R)



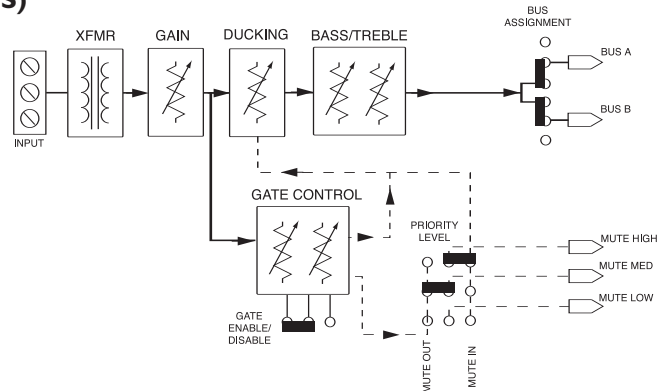
Gain	-20 dB to 6 dB
Frequency Response	+0/-3 dB, 5 Hz - 100 kHz
S/N (20 Hz - 20 kHz)	-100 dBV
Distortion	< 0.005%, 20 Hz - 20 kHz
Input Impedance	50k ohms
Tone	±10 dB @ 100 Hz & 10 kHz
Ducking (level)	-10 dB to -48 dB
Gate Threshold	3 mV to 30 mV
Gate Duration	0.5s to 5s
Priority	Four levels
Controls	Gain, Bass, Treble, Ducking, Gate Threshold, Gate Duration
Connector	RCA type
Power	±24V DC
Dimensions	1-3/8" W x 3-1/8" H x 3-1/2" D
Weight	2.6 oz.



## Transformer-Balanced Input Module (TBL1S)



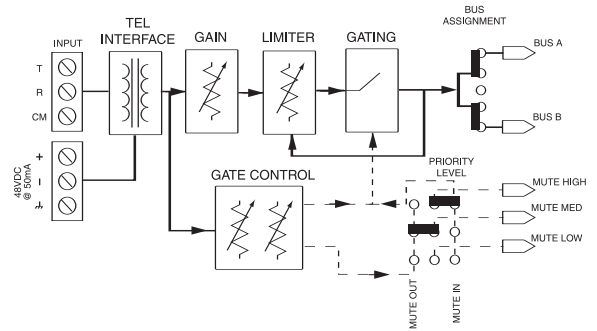
Gain	-11 dB to +19 dB
Frequency Response	10 - 40 kHz (+0/-3 dB)
S/N (20 Hz - 20 kHz)	-75 dBV
Distortion	< 0.3% 20 Hz - 20 kHz @ 1V
Input Impedance	10k ohms/600 ohms (jumper selectable)
Gate Threshold	5 mV to disable
Gate Duration	0.5s to 5s
Priority	Four levels
Duck Level	-10 dB to -72 dB
Tone	+/- 10 dB @ 100 Hz & 10 kHz
CMRR	> 80 dB @ 1 kHz
Controls	Gain, Bass, Treble, Duck, Gate Threshold, Gate Duration
Connector	Pluggable Euro Screw Type
Power	±24V DC
Dimensions	1-3/8" W x 3-1/8" H x 3-1/2" D
Weight	3.8 oz.



## Telephone Input Module (TEL1S)



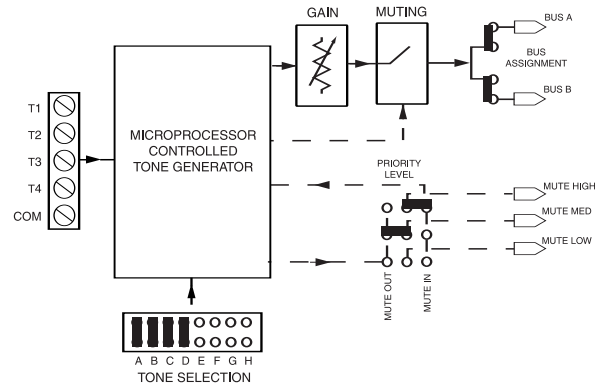
Gain	0 dB to 30 dB
Frequency Response	+0/-3 dB, 20 Hz - 20 kHz
S/N (20 Hz - 20 kHz)	-90 dBV @ 30 dB of gain, -120 dBV EIN
Distortion	< 0.1%, 20 Hz - 20 kHz
Input Impedance	Dry loop 30k ohms, Wet loop 1k ohms
Limit (threshold)	-10 dBV to off
Gate Threshold	3 mV to 30 mV
Gate Duration	0.5s to 5s
Priority	Four levels
External Power	48V DC (for talk battery)
CMRR	> 80 dB @ 1 kHz
Controls	Gain, Limit, Gate Threshold, Gate Duration
Connector	6-position barrier strip
Power	±24 V DC
Dimensions	1-3/8" W x 3-1/8" H x 3-1/2" D
Weight	2.8 oz.



## Tone Generator Input Module (TNG1S)



Max. Output Level	1.8V
Max. Contact Resist.	100 ohms
Tones	8 total, 4 selectable; 512 Hz Burst/steady, slow whoop, siren, mechanical bell, Klaxon, night ringer, double chime, & doorbell
Priority	Four levels
Controls	Level
Connector	5-position barrier strip
Power	±24 V DC
Dimensions	1-3/8" W x 3-1/8" H x 3-1/2" D
Weight	2 oz.



## ARCHITECT & ENGINEER SPECIFICATIONS\*

**Balanced Input Module (BAL2S)** The BAL2S input module shall be a stereo, high-impedance, electronically-balanced input module. It shall be mutable by higher priority modules and shall feature an internal PCB jumper to enable or disable muting from the priority bus system. It shall have a continuously variable ducking control that will enable attenuation of the input signal from a minimum of 10 dB to a maximum of 48 dB relative to the normal unmuted condition. The module shall have a rapid mute when the mute function is activated and a gradual fade back from mute when the mute control is deactivated. Gain shall be switch selectable per channel and shall be 0 dB or +18 dB.

**Bridging Input Module (BRG1R)** The BRG1R input module shall have a mono-balanced input and a buffered pseudo-balanced output that will enable the connection of several amplifiers to each other in a daisy chain configuration without creating ground loops between units. It shall have an RCA jack for both the input and the output connections. The module shall have a gain/trim control that will allow the gain to be adjusted plus or minus 5 dB relative to 0 dB nominal gain. It shall have the ability to mute lower priority modules and be muted by higher priority modules. The module shall be able to assume any of 4 priority levels. It shall have a continuously variable ducking control that will enable attenuation of the input signal from a minimum of 10 dB to a maximum of 48 dB relative to the normal unmuted condition and a gradual fade back from mute when the mute control is deactivated. The buffered output shall not be mutable. The module shall have a VOX/gating circuit to control muting of lower priority modules and an internal gating circuit with controls for threshold and duration. The module's output shall be assignable to either or both of two mixing buses.

**Mono Aux Input Module (MAX1R)** The MAX1R module shall be a mono, high-impedance, unbalanced input module. The module shall have an RCA jack as its input connector. The module shall have a gain/trim control that will allow the gain to be adjusted from -20 dB to +6 dB relative to 0 dB nominal gain. It shall have the ability to mute lower priority modules and be muted by higher priority modules. The module shall be able to assume any of 4 priority levels. It shall have a continuously variable ducking control that will enable attenuation of the input signal from a minimum of 10 dB to a maximum of 48 dB relative to the normal unmuted condition and a gradual fade back from mute when the mute or gate control is deactivated. The module shall have a VOX/gating circuit to control muting of lower priority modules and its internal gating circuit, with controls for threshold and duration. The module shall have bass and treble controls with cut or boost of 10 dB at 100 Hz and 10 kHz, respectively. The module's output shall be assignable to either or both of two mixing buses.

**Microphone Input Module (MIC1S)** The MIC1S module shall have a transformer-isolated, balanced input with screw terminal connector. It shall interface with low-impedance dynamic microphones. It shall also interface with electret condenser microphones and shall have an internal 24V DC phantom power supply to provide the bias supply that is enabled by a PCB jumper. The module shall have a gain control that will allow the gain to be adjusted from 28 dB to 62 dB. It shall have the ability to mute lower priority modules and be muted by higher priority modules. The module shall be able to assume any of 4 priority levels. The module shall have a VOX/gating circuit to control muting of lower priority modules and its internal gating circuit with controls for threshold and duration. It shall have a built-in limiter, with a threshold control, to limit the maximum output level of the module. The module shall have bass and treble controls with cut or boost of 10 dB at 100 Hz and 10 kHz, respectively. The module's output shall be assignable to either or both of two mixing buses.

**Microphone Input Module (MIC1X)** The MIC1X module shall have a transformer-isolated, balanced input with XLR connector. It shall interface with low-impedance dynamic microphones. It shall also interface with electret condenser microphones and shall have an internal 24V DC phantom power supply to provide the bias supply that is enabled by a PCB jumper. The module shall have a gain control that will allow the gain to be adjusted from 28 dB to 62 dB. It shall have the ability to mute lower priority modules and be muted by higher priority modules. The module shall be able to assume any of 4 priority levels. The module shall have a VOX/gating circuit to control muting of lower priority modules and its internal gating circuit with controls for threshold and duration. It shall have a built-in limiter, with a threshold control, to limit the maximum output level of the module. The module shall have bass and treble controls with cut or boost of 10 dB at 100 Hz and 10 kHz, respectively. The module's output shall be assignable to either or both of two mixing buses.

**Microphone Input Module (MIC2S)** The MIC2S module shall have an electronically-balanced input with screw terminal connector. It shall interface with low-impedance dynamic microphones. It shall also interface with electret condenser microphones and shall have an internal 24V DC phantom power supply to provide the bias supply that is enabled by a PCB jumper. The module shall have a gain control that will allow the gain to be adjusted from 18 dB to 62 dB. It shall have the ability to mute lower priority modules and be muted by higher priority modules. The module shall be able to assume any of 4 priority levels. The module shall have a VOX/gating circuit to control muting of lower priority modules and its internal gating circuit with a threshold control. It shall have a built-in limiter, with a threshold control, to limit the maximum output level of the module. The module shall have bass and treble controls with cut only of 10 dB at 100 Hz and 3 kHz, respectively. The module shall have a voice enhancement control for improving voice intelligibility. The module's output shall be assignable to either or both of two mixing buses.

\* Architect & Engineer Specifications are available on the Bogen website in a Microsoft® Word document to assist you with preparing your bids.

## ARCHITECT & ENGINEER SPECIFICATIONS (cont.)

**Microphone Input Module (MIC2X)** The MIC2X module shall have an electronically-balanced input with XLR connector. It shall interface with low-impedance dynamic microphones. It shall also interface with electret condenser microphones and shall have an internal 24V DC phantom power supply to provide the bias supply that is enabled by a PCB jumper. The module shall have a gain control that will allow the gain to be adjusted from 18 dB to 62 dB. It shall have the ability to mute lower priority modules and be muted by higher priority modules. The module shall be able to assume any of 4 priority levels. The module shall have a VOX/gating circuit to control muting of lower priority modules and its internal gating circuit with a threshold control. It shall have a built-in limiter, with a threshold control, to limit the maximum output level of the module. The module shall have bass and treble controls with cut only of 10 dB at 100 Hz and 3 kHz, respectively. The module shall have a voice enhancement control for improving voice intelligibility. The module's output shall be assignable to either or both of two mixing buses.

**Stereo Aux Input Module (SAX1R)** The SAX1R module shall be a stereo, high-impedance, unbalanced input module. The module shall have two RCA jacks for its input connectors. The module shall have a gain/trim control that will allow the gain to be adjusted from -20 dB to +6 dB relative to 0 dB nominal gain. It shall have the ability to mute lower priority modules and be muted by higher priority modules. The module shall be able to assume any of 4 priority levels. It shall have a continuously variable ducking control that will enable attenuation of the input signal from a minimum of 10 dB to a maximum of 48 dB relative to the normal unmuted condition and a gradual fade back from mute when the mute or gate control is deactivated. The module shall have a VOX/gating circuit to control muting of lower priority modules and its internal gating circuit, with controls for threshold and duration. The module shall have bass and treble controls with cut or boost of 10 dB at 100 Hz and 10 kHz, respectively. The module's outputs shall be independently assignable to each of two mixing buses. The module shall allow stereo sources to be summed and sent mono to either or both of two mixing buses.

**Transformer-Balanced Input Module (TBL1S)** The TBL1S input module shall be a transformer-isolated, line-level, balanced input module. The module shall have a pluggable 3-pin screw terminal input barrier strip connector to make the input connection. The module shall have a jumper selectable input impedance of 600 ohms or 10k ohms. The module shall have a gain/trim control that will allow the gain to be adjusted from -11 dB to +19 dB. It shall have the ability to mute lower priority modules and be muted by higher priority modules. The module shall be able to assume any of 4 priority levels. The module shall have a VOX/gating circuit to control muting of lower priority modules and its internal gating circuit with controls for threshold and duration. It shall have a continuously variable ducking control that will enable attenuation of the input signal from a minimum of -10 dB to a maximum of -72 dB relative to the normal unmuted condition and a gradual fade back from mute when the mute or gate control is deactivated. The module's output shall be assignable to either or both of two mixing buses.

**Telephone Input Module (TEL1S)** The TEL1S module shall have a transformer-isolated, balanced input and configuration jumpers that will allow it to interface with both wet and dry loop telephone systems. In the dry loop mode, this module shall allow connections to page port systems. In the wet mode of operation, it shall allow connections to both ground start and loop start telephone systems. The module shall have a 6-pin screw terminal input barrier strip connector to make the input connection. The module shall provide for the connection of an external talk-battery power supply of 48V DC. The module shall have a gain control that will allow the gain to be adjusted from 0 dB to 30 dB. It shall have the ability to mute lower priority modules and be muted by higher priority modules. The module shall be able to assume any of 4 priority levels. The module shall have a VOX/gating circuit to control muting of lower priority modules and its internal gating circuit with controls for threshold and duration. It shall have a built-in limiter, with a threshold control, to limit the maximum output level of the module. The module's output shall be assignable to either or both of two mixing buses.

**Tone Generator Input Module (TNG1S)** The TNG1S input module shall be a multiple tone generator input module. The module shall have a 5-pin screw terminal input barrier strip connector to make the trigger connections. The module shall include 8 tones: 512 Hz burst/steady, slow whoop, siren, mechanical bell, Klaxon, night ringer, double chime, and doorbell tones. The module shall permit 4 of the 8 tones to be triggered. Momentary and continuous playback modes shall be available. The module shall have a level control. It shall have the ability to mute lower priority modules and be muted by higher priority modules. The module shall be able to assume any of 4 priority levels. The module shall have a gradual fade back from mute when the mute control is deactivated. The module's output shall be assignable to either or both of two mixing buses.

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