## TELEPHONE PAGING AMPLIFIERS

### **TPU250**



## **TPU35B, TPU60B,** TPU100B



**TPU100B** shown

## TPU15A



Bogen's TPU-Series of amplifiers are the ideal choice within the telephone paging industry. With five models to choose from, ranging in power from 15 watts to 250 watts, each model provides signal-activated, automatic muting of background music during a telephone page, and gradual return of music following a page.

#### Product Features:

- 15-, 35-, 60-, 100- and 250-watt models specially designed for telephone paging systems
- 3 inputs on TPU250 and TPU-B models: 1 TEL, 1 MIC (Lo-Z), 1 AUX (Hi-Z)
- 2 inputs on TPU15A: 1 TEL, 1 AUX (Hi-Z)
- 600-ohm balanced TEL input for direct connection to page ports and adapters
- TEL input has Automatic Level Control (ALC) for constant page announcement
- · Separate MIC input for a low-impedance push-to-talk microphone (excluding TPU15A model)
- Audio enhancement circuitry (excluding) TPU15A model)
- · Music input mutable by external contact closure (excluding TPU15A model) or activity on TEL input
- Separate volume controls for mic, paging, background music, and night ringer
- Built-in night ringer can be activated from 90V ring signal (excluding TPU15A model) or external contact closure

- · 25V and 70V constant-voltage outputs, balanced and unbalanced; also 8-ohm on TPU15A
- Wall-mount design provides minimum protrusion from backboard
- TPU-B models may be rack-mounted using RPK82 rack mounting kit (sold separately)
- TPU250 designed to rack mount directly. no kit necessary
- Easily accessible, recessed front-panel controls (excluding TPU15A model) for setting volume, muting, music, etc.
- RCA jacks provided to allow amplifier bridging to double the number of amplifier inputs and outputs (excluding TPU15A model); a TPU250 can only be bridged with one other TPU250
- Thermal and electronic overload protection (excluding TPU15A model), resettable circuit breaker (except TPU250), Slo-Blo fuse on TPU250
- Listed to UL Standard 60065 for US and Canada

	tts)	ı	Input	\$	plousa	ontrol	sle		Level	ute	٦t		ght iger		C	Outpu	ts	
Model	Output Power (Watts)	Telephone	Music	Microphone	Adjustable Mute Threshold	Automatic Level Control	Bass/Treble Controls	Peak Level LED	Adjustable Mute Le	Fade Back From Mute	Audio Enhancement	90V Activation	Contact Closure	707	25V	25VCT	8 Ohms	16 Ohms
TPU250	250																	
TPU100B	100																	
TPU60B	60																	
TPU35B	35																	
TPU15A	15						*											

\* Treble Cut only

**Technical Specifications, Dimensions,** and Weights can be found on Page 79

#### Specialized Telephone Input

The TPU-Series' 600-ohm transformer balanced input is perfectly suited to connect to paging ports and paging adapters such as Bogen's TAMB2. Here are a few specially designed features:

- · The background music will mute whenever paging activity is present on the telephone input, even if control contacts are not available. (Separate mute control contacts are also available.)
- To avoid problems with noise on the lines falsely muting the background music, a built-in VOX threshold control (not on TPU15A) lets you decide what's a real signal and what's noise.
- · Because not everyone speaks at the same level, the Automatic Level Control feature keeps loud voices from booming out of the paging system's speakers.

#### Audio Enhancement

Crisp, clean, intelligible sound is the goal of every paging system. The audio enhancement circuit adds back the high frequency harmonics that are lost through the handsets and speakers. With one simple control, vou can adjust the amount of high frequency content the audio enhancement circuit adds back until optimum intelligibility is reached.

#### Variable Music Mute

Add some polish to announcements by using the TPU's built-in variable mute feature. Variable mute allows you to control the level of the music heard in the background during a page. It's fully adjustable from no muting of music to full suppression of music. The TPU also gracefully fades the muted music back in after the page is finished for a smooth, professional sound (not available on TPU15A).

#### **Bridging**

Bridging two TPU amplifiers permits them to be used in tandem with one another to increase the total output power of the system, thereby permitting additional speakers to be added. For example, when two 250-watt amplifiers are bridged, the total output capacity of the system is 500 watts. Also, both amplifiers will receive the same input signal, amplify it, and deliver it to the speaker loads connected to each amplifier (not available on TPU15A).



## AMPLIFIER FEATURES CHART

															,							
Amplifier Output Power Rating/ Channel	Model Numbers	Amp Channels	TEL Input*	Lo-Z Balanced	*siuqni XUA beonsisanced	Balanced Inputs	Modular Inputs	oibuA finemeonsing	Loudness Contour	ALC	ЕЙ	Bass/Treble	Tone Control	ətuM əldsinsV	ətuM otuA	Manual Mute	Night Ringer Remote Volume	Talal Meter	fruoM llsW	Shelf Mount	Rack Mount	Page Number
1.5W	GA2	-			-																	42
M9	GA6A	-		-	-								•									42
10W	010	-	-	2 (1)	(1)																•	42
15W	TPU15A	-	-		-					•												43
20W	C20	-	-	2 (1)	(1)																•	42
35W	C35	-	-	2 (1)	1 (2)				$\vdash$		F	•	-				$\vdash$	L		•		42
35W	6835	-	0 (1)	6 (4)	1 (2)			•	•	•	•										•	14
35W	TPU35B	-	-	-	-			•				•									•	43
35W	V35	-	•	•	•	•	8														•	38
M09	BPA60	-																		•	•	46
M09	090	-	-	2 (1)	1 (2)							•									•	42
M09	0989	-	0 (1)	6 (4)	1 (2)			•			•										•	41
M09	TPU60B	-	-	-	-			•		•		•									•	43
M09	V60	-	•		•		8				•	•									•	38
100W	C100	-	-	2 (1)	1 (2)							•									•	42
100W	GS100	-	0 (1)	6 (4)	1 (2)			•	•	•	•										•	41
100W/60W/20W	PM3180	3	0 (1)	2 (1)	4																•	47
100W	TPU100B	1	-	1	1												•					43
100W	V100	-	•	•	•	•	80			•	•										•	38
100W	WV100	-	•		•	•	∞				•	•							•			40
125W	HTA125A	1												$\vdash$								46
150W	GS150	-	0 (1)	6 (4)	1 (2)			•	•	•	•											41
150W	V150	-			•	•	80				•	•									•	38
150W	WV150	1					8															40
250W	68250	1	0 (1)	6 (4)	1 (2)																	41
250W	HTA250A	-																				46
250W	TPU250	-	-	-	1							•										43
250W	V250	-			•		8															38
250W	WV250	1					8															40
300/600W	M300	2/1			•	2⁺	2															45
300W	X300	2				2																44
450/900W	M450	2/1				2	2															45
450W	X450	2				2																44
600/1200W	M600	2/1				2	2															45
MUUS	0000	,																				

Feature Included

Features determined by type of module installed

Balanced input available with accessory plug-in transformer (TL100 or TL600)

Accessory kit required for mounting

Contact closure activation only

\* Some inputs are switch selectable. The number in parentheses shows the maximum number of inputs when switched.

† BAL2S balanced input module included standard; uses one modular input bay.

Specifications subject to change without notice.

# AMPLIFIER SPECS CHART

1	Model	Output Power	ol current		***************************************	Oncolon Ordensto	AC Line	Dimonojono	Product
60WW         1         2D Hz to 20 MHz         2% Max         R-Dun 2004 Te-Dun         180W           20WW         1         7D Hz to 15 MHz         1% Max         7D M 2504 Fe-Dun         38W           55WW         1         7D Hz to 15 MHz - Transformer         1% Max         7D M 2504 Fe-Dun         150W           150W         1         7D Hz to 15 MHz - Transformer         1% Max         7D M 2504 Fe-Dun         150W           150W         1         2D Hz to 15 MHz - Transformer         2% Max         7D M 2504 Se-Dun         150W           150W         1         2D Hz to 20 MHz - Transformer         2% Max         7D M 2504 Se-Dun         150M           150W         250W         1         2D M 250 MHz	Numbers	rating/channel	cuannels	la Li	DISTORTION	Speaker Outputs	Draw	DIMENSIONS	weigin
150	BPA60	M09	-	20 Hz to 20 kHz	2% Max	8-ohm/25V, 16-ohm, 25VCT, 70V	180W	15-1/4" W × 3-1/2" H × 8-1/4" D	17 lb.
1	C40	10W					38W		7 Y
250W 500 M 500 M 50			-	70 Hz to 16 kHz	1% Max	70V, 25V, 16-ohm,		11-3/8" W x 2-7/8" H x 7-3/8" D	
158W   1	C20	20W				8-0hm, 4-0hm	50W		6 lb.
Section Glose   1-158W   1   70 Hz to 16 Hebz - Thansformer;   14% Max   8-ohm of GS and GS 0   222WW   1   200 Hz to 12 Hz   22% Max   8-ohm of GS and GS 0   222WW   1   200 Hz to 12 Hz   22% Max   8-ohm of GS and GS 0   222WW   1000W   1   200 Hz to 12 Hz   20 Hz to 20 Hz - Thansformer;   1550W   250 GP   200 Hz to 20 Hz   20 Hz   20 Hz to 20 Hz   20 Hz   20 Hz to 20 Hz   20 Hz   20 Hz to 20 Hz   20 Hz   20 Hz to 20 Hz   20	C35	35W				70V. 25V. 16-0hm.	85W		15 lb.
150W   1   200 kto 15 kktz   2% Max   8-600-ohm   4W   1   300 kto 15 kktz   2% Max   700, 250, 600-ohm   4W   1   300 kto 15 kktz   200 kto 10 to 20 ktz   200 kto 10 to 20 ktz   200 kto 10 to 20 ktz   200 kto 20 ktz   200	090	M09	-	70 Hz to 16 kHz - Transformer;	1% Max	4-ohm direct	148W	14-1/2" W × 3-3/4" H × 11" D	17 lb.
158W   1   200 Hz to 15 kHz   2% Max   700, 250, 8-0mm   44V   190W   190W   190 Hz to 20 kHz - Transformer, 156W   2.5% Max   700, 250, 250/CT   1.3A   1.3B   1	C100	100W		20 Hz to 20 kHz - Direct		8-ohm on C35 and C60	220W		19 lb.
SSW   1	GA2	1.5W	-	200 Hz to 15 kHz	2% Max	8- & 600-ohm	4W	5-1/2" W x 4-1/8" H x 2-1/4" D	2 lb.
150W   150W   1   20 Hz to 20 Mtz - Transformer;   150W	GA6A	9 eW	1	30 Hz to 12 kHz	2% Max	70V, 25V, 8-ohm	16W	8-1/2" W x 2-3/4" H x 6" D	5 lb.
60W         1 20 kt to 20 kt² - Transformer, 190W         0.5% Max         770V, 28V, 28V, 28VCT, 28V, 28VCT (2.5% Max 2.580W         1.3A         1.3A           150W         1 20 kt to 20 kt² - Direct         0.5% Max         770V, 28V, 25V, 25V, 25V, 25V, 25V, 25V, 25V, 25	6835	35W					0.9A		17 lb.
100W   1	0989	M09		100 00 00 00 00 00 00 00 00 00 00 00 00		ZOV 25V 25VCT	1.3A		20 lb.
150W   1   20 Hz to 20 Htz   0.5% Max   770 Z5VCT, 25V   260W   250W	GS100	100W	-	20 Hz to 20 kHz - Direct	0.5% Max	8-ohm, 4-ohm direct	2.2A	16-1/2" W x 3-1/2" H x 13-1/2" D	23 lb.
125W   1   20 Hz to 20 H4z b   0.5% Max   700, 250/C1 55V, 260W   250W	GS150	150W					3.0A		29 lb.
128W   2.00 kHz	68250	250W					5.0A		30 lb.
250W         1         20 PG 10 20 KHZ         0.0.5% Max         R-0hm, 4-0hm         8-0hm, 4-0hm         520W           3000600W         0.0         12 A 20 KHZ         0.0.5% Max         4- to 8-ohm (2 chainel mode)         15A           100W         100W         70 Hz to 20 kHz - Transi (wm 1 % 2): 20 Hz to 15 kHz - Direct (wm 1 % 2): 20 Hz to 15 kHz - Direct (wm 1 % 2): 20 Hz to 15 kHz - Direct (wm 1 % 2): 20 Hz to 15 kHz - Direct (wm 9 % 2): 20 Hz to 15 kHz - Direct (wm 9 % 2): 20 Hz to 15 kHz - Direct (wm 9 % 2): 20 Hz to 15 kHz - Direct (wm 9 % 2): 20 Hz to 15 kHz - Direct (wm 9 % 2): 20 Hz to 15 kHz - Direct (wm 9 % 2): 20 Hz to 15 kHz - Direct (wm 9 % 2): 20 Hz to 20 kHz - Direct (wm	HTA125A	125W	,	- HA 00 04 - H 00	W2V	70V, 25VCT, 25V,	260W	10° W > 5-11/1" H > 1-11	36 lb.
100W   2	HTA250A	250W	-	ZU HZ 10 ZU KHZ	U.D% IVIAX	8-ohm, 4-ohm	520W	D	50 lb.
450/900W         or 600/1200W         20 Hz to 20 kHz - Trans (Amp 1 & 2); 600W         0.5% Max         4 to 8-ohm (2 clannel mode)         15A           600/1200W         3         70 Hz to 20 kHz - Trans (Amp 1 & 2); 20 Hz to 20 kHz - Trans (Amp 3 ); 1% - Amp 1 620         1% - Amp 3 (Amp 2 ) 1% - Amp 1 82; 1% - Amp	M300	300/e00W	٥				12A	MINOR OF THE INDEX OF THE INC.	41 lb.
100W   1	M450	450/900W	or	20 Hz to 20 kHz	0.5% Max	4- to 8-ohm (2 channel mode);	15A	1/- W x 3-1/2- H x 18-1/2- U (not including brackets)	44 lb.
150W 50W 20W 1 15W 100W 1 100W 1 100W 1 100W 1 100W 1 1 20 Hz L D 0 Hz L D 12 Hz 20 Hz L D 20 Hz L D 12 Hz 20 Hz L D 20 Hz L D 12 Hz 20 Hz L D 20 Hz L D 12 Hz 20 Hz L D 20 Hz L D 12 Hz 20 Hz L D 20 Hz L D 12 Hz 20 Hz L D 20 Hz L D 12 Hz 20 Hz L D 20 Hz L D 20 Hz 20 Hz L D 20 Hz L D 20 Hz 20 Hz L D 20 Hz L D 20 Hz 20 Hz L D 20 Hz L D 20 Hz 20 Hz L D 20 Hz L D 20 Hz 20 Hz L D 20 Hz L D 20 Hz 20 Hz L D 20 Hz L D 20 Hz 20 Hz L D 20 Hz L D 20 Hz 20 Hz L D 20 Hz L D 20 Hz 20 Hz L D 20 Hz L D 20 Hz 20 Hz L D 20 Hz L D 20 Hz 20 Hz L D 20 Hz L D 20 Hz 20 Hz L D 20 Hz L D 20 Hz 20 Hz	M600	600/1200W	-			(1 channel mode)	20A		46 lb.
55W         1         70 Hz to 12 kHz         2% Max         700, 250, 250/GT         0.5A         60W         0.75A         0.75A <th>PM3180</th> <th>100W 60W 20W</th> <th>3</th> <td>70 Hz to 20 kHz - Trans (Amp 1 &amp; 2); 70 Hz to 15 kHz - Trans (Amp 3); 20 Hz to 20 kHz - Direct (Amp 1 &amp; 2); 20 Hz to 15 kHz - Direct (Amp 3)</td> <td>0.5% - Amp 1&amp;2; 1% - Amp 3 (Max)</td> <td>70V, 25V, 8-ohm, 4-ohm direct</td> <td>430W</td> <td>17' W x 5-1/2' H x 12-1/2' D</td> <td>38 lb.</td>	PM3180	100W 60W 20W	3	70 Hz to 20 kHz - Trans (Amp 1 & 2); 70 Hz to 15 kHz - Trans (Amp 3); 20 Hz to 20 kHz - Direct (Amp 1 & 2); 20 Hz to 15 kHz - Direct (Amp 3)	0.5% - Amp 1&2; 1% - Amp 3 (Max)	70V, 25V, 8-ohm, 4-ohm direct	430W	17' W x 5-1/2' H x 12-1/2' D	38 lb.
60W         1         70 Hz to 15 kHz         1% Max         1% Max         70V, 25V, 25VCT         1.5A           260W         100W         45 Hz to 20 kHz - Transformer; 150W         1% Max         70V, 25V, 35V, 35V, 35V, 35V, 35V, 35V, 35V, 3	TPU15A	15W		70 Hz to 12 kHz	2% Max	70V, 25V, 8-ohm	0.5A	11" W × 2-3/4" H × 2-3/8" D	4 lb.
60W         1         70 Hz to 15 kHz         1% Max         70V, 25V, 25V, 25V, 25V         1.5A           250W         35W         45 Hz to 20 kHz - Transformer; 150W         Transformer; 250W         Transformer; 250W         1.3A         1.3A           100W         1         45 Hz to 20 kHz - Transformer; 150W         1.3% - Direct (Max)         70V, 25V, 8-ohm, 25V, 8-ohm, 2.0A         2.0A           100W         1         45 Hz to 20 kHz - Transformer; 20 Hz to 20 kHz - Direct (Max)         1.3% - Direct (Max)         70V, 25V, 8-ohm, 25V, 8-ohm, 2.0A         2.0A           250W         250W         20 Hz to 20 kHz - Direct (Max)         0.1% - Direct (Max)         0.1% - Direct (Max)         4-ohm direct (Max)         3.5A           300W         2         20 Hz to 20 kHz - Direct (Max)         0.1% - Direct (Max)         4-ohm direct (Max)         2.0A	TPU35B	35W					0.75A		12 lb.
100W   250W   250W   250W   260W   260W   260W   45 Hz to 20 kHz - Transformer;   100W   10	TPU60B	M09	-	70 Hz to 15 kHz	1% Max	70V, 25V, 25VCT, 16-nhm	1.5A	14-1/4" W x 8-3/8" H x 3-5/8" D	15 lb.
150W   100W   1   20 kHz - Transformer;   150W   150W   150W   1   20 kHz - Transformer;   150W   150W   1   20 kHz - Transformer;   150W   150W   1   20 kHz - Transformer;   150W   150W   20 kHz - Transformer;   150W   150W   20 kHz - Transformer;   150W   150W   20 kHz - Direct   (Max)   101% - Direct   (Max)   101% - Direct   (Max)   101% - Direct   (Max)   101% - Direct   150W	TPU100B	100W					2A		18 lb.
55W         45 Hz to 20 kHz - Transformer; 100W         0.5% - Transformer; 20 Hz to 20 kHz - Transformer; 150W         1.3A         1.3A         1.3A           150W         45 Hz to 20 kHz - Direct 100W         1.3% - Oirect 100W         1.3% - Oirect 100W         1.3A         1.3A           150W         45 Hz to 20 kHz - Direct 20 kHz - Direct 20 kHz - Direct 20 kHz - Direct 300W         0.5% - Oirect 100W         700, 25V, 8-ohm, 25V, 8-ohm, 25.A         2.0A           250W         350W         20 Hz to 20 kHz - Direct (Max)         0.5% Max         700, 25V, 8-ohm, 25.A         2.0A           450W         20 Hz to 20 kHz - Direct 450W         0.5% Max         700 Z5V, 8-ohm, 3.5A         2.0A           85A         300W         20 Hz to 20 kHz - Direct (Max)         0.5% Max         700 direct 15A         15A	TPU250	250W			ı	70V, 25V	5A	19" W x 10-1/2" H x 3-7/8" D	28 lb.
60W         45 Hz to 20 kHz - Transformer; 150W         Transformer; 20 Hz to 20 kHz - Transformer; 150W         Transformer; 150W         70V, 25V, 8-ohm, 2.0A         1.3A           150W         45 Hz to 20 kHz - Direct 150W         0.1% - Direct 150W         0.5% - Aohm direct 15.5A         2.0A           150W         45 Hz to 20 kHz - Transformer; 250W         100 kHz - Direct 15.0W         0.5% - Direct 15.0W         70V, 25V, 8-ohm, 25V, 8-ohm, 3.5A         2.0A           300W         20 Hz to 20 kHz - Direct 15.0W         0.1% - Direct 15.0W         0.1% - Direct 15.0W         4-ohm direct 15.0W         1.2A           450W         20 Hz to 20 kHz - Direct 15.0W         0.5% Max         70V direct 15.0W         15A	V35	35W					0.6A		22 lb.
100W   1	09/	M09			0.5%		1.3A		26 lb.
150W         To Lo 20 kHz - Transformer, 550W         (Max)         Tow, 250, 8-ohm, 20 kHz - Transformer, 700, 250, 8-ohm, 20 kHz - Direct 4-ohm direct 4-ohm direct 550W         2.0A         2.0A           150W         1	V100	100W	-	45 Hz to 20 kHz - Transformer;	1.ransrormer; 0.1% - Direct	70V, 25V, 8-ohm, 7-ohm direct	2.0A	17-1/4" W x 3-7/8" H x 14-3/4" D	28 lb.
250W         100W         45 Hz to 20 kHz - Transformer; 20 Hz to 20 kHz - Direct         Transformer; 20 Hz to 20 kHz - Direct         100 Hz to 20 kHz - Transformer; 20 Hz to 20 kHz - Direct         700, 250, 8-ohm, 3.5A         2.0A           250W         300W         2 20 Hz to 20 kHz - Direct         (Max)         4-ohm direct         5.5A           450W         2 20 Hz to 20 kHz         0.5% Max         700 direct         15A	V150	150W		70 II IO 20 II I I I I I I I I I I I I I I I I I	(Max)	100-1	3.5A		31 lb.
100W         1         45 Hz to 20 kHz - Transformer; T	V250	250W					5.5A		32 lb.
150W         1         45 Hz to 20 kHz - Transformer; 20 Hz to 20 kHz - Direct         ITansformer; 4-ohm direct         70V, 25V, 8-ohm, 25A         3.5A           250W         20 Hz to 20 kHz - Direct         (Max)         (Max)         4-ohm direct         5.5A           450W         2         20 Hz to 20 kHz         0.5% Max         70V direct         15A	WV100	100W			0.5%		2.0A		27 lb.
250W         20 Hz to 20 kHz         (Max)         4-billi ülfeüt         5.5A           300W         2 Put to 20 kHz         0.5% Max         70V direct         12A           600W         2 Put to 20 kHz         0.5% Max         70V direct         15A	WV150	150W	-	45 Hz to 20 kHz - Transformer;	nanstormer; 0.1% - Direct	70V, 25V, 8-ohm,	3.5A	14-1/8" W x 21" H	29 lb.
300W         2         20 Hz to 20 kHz         0.5% Max         70V direct         15A	WV250	250W		ZO 117 10 ZO KITZ = DII 6CI	(Max)	4-onm direct	5.5A		28 lb.
450W         2         20 Hz to 20 KHz         0.5% Max         70V direct         15A           600W         20 Hz to 20 KHz         2.04 Max         2.04 Max         2.04 Max         2.04 Max	X300	300W					12A	7 197 7 0 5 7 11 100 4 0 7 M 11 24	41 lb.
<b>600W</b> 20A	X450	450W	2	20 Hz to 20 kHz	0.5% Max	70V direct	15A	(not including brackets)	44 lb.
	009X	W009					20A		46 lb.

<sup>\*@ -2</sup>dB FRP Transformer output; @ FRP for Direct outputs

<sup>\*\*</sup> Bandwidth limited to frequency response

<sup>\*\*\*</sup>FRP @ 120V AC line voltage