



THE PUBLIC ADDRESS
AMPLIFIER SYSTEM WITH
FLEXIBILITY BUILT-IN

mitre



BALDWIN BOXALL
COMMUNICATIONS



The Mitre range is now a well-proven group of products. With an excellent track record for reliability, Mitre can accommodate all your PA needs ~ integrating several uses at the touch of a button if required. The user-friendly Mitre range comes with several built-in safety factors and is designed to provide a high degree of flexibility as well as quality and reliability. Mitre was designed at our Sussex headquarters and is now at the heart of countless PA systems.



The induction loop amplifier (M10L) may be used as a 'stand alone' unit, although it is normally 'slaved' from the main PA system via the auxiliary input.

The Mitre range includes:

- ▲ Mixer amplifiers – 120 Watt (M2120E) and 300 Watt (M2300M).
- ▲ Slave amplifiers – 300 Watt (M2300S).
- ▲ Induction loop amplifier (M10L).

All Mitre amplifiers are protected from overheating by using sensors attached to the output stage heatsink, especially important where amplifiers are rack mounted and used for continuous broadcast – such as for background music. Should the amplifier exceed its safe operating temperature it will automatically reduce its volume to a safe level, thus allowing it to cool. Once cooled it will operate normally without manual resetting. The 300 Watt versions are further protected by use of temperature controlled internal fans.

mitre Mixer Amplifier ~ 120 Watt M2120E



M120E is an integrated 5 input 120 Watt free standing or rack mountable amplifier powered from a 230 Volt AC power supply. Each of the 5 inputs has its own volume, bass and treble controls.

Features:

- ▲ 5 inputs which have their own volume, bass and treble controls.
- ▲ An output level 4 bar LED display indicates at 5%, 25%, 50% and 100% power.
- ▲ 230 Volt AC supply.
- ▲ Both 100V line or low impedance are selectable via a Neutrik Speakon Connector.
- ▲ Optional OPT401 digital recordable, message can be up to 60 seconds in length, unmonitored message module.
- ▲ Free standing or rack mountable (use M2RACK).
- ▲ Optional OPT 33 chime module.
- ▲ Optional Graphic Equaliser.
- ▲ 2 U high.



Features:

- ▲ Four balanced microphone/line universal inputs.
- ▲ Each universal input has the option of cascade priority, phantom power, chime and volume restoration/busy.
- ▲ XLR or screw terminations.
- ▲ Built-in one, two or three note chime with pre-set volume control.
- ▲ Built-in alarm tone generator with pre-set volume control. Tones are adjustable.
- ▲ A continuous 900 Hz tone or continuous pips can be configured, making it suitable for class change, start and stop work, etc.
- ▲ Each universal input has an 'input live' indicator.
- ▲ Master volume, treble and bass controls.
- ▲ Four zone relay selector as standard.
- ▲ Internal option socket. Can be used to add frequency equaliser, etc.
- ▲ Music mute facility, which allows for music to be totally muted or 'ducked' to a pre-set level, when paging operated.
- ▲ Remote music mute DC input from time clocks, etc.
- ▲ Output stage protected by thermal shut down in the event of an unsuitable load.
- ▲ Auxiliary stereo music input (internally mixed) to accept tuners, CD players or tape decks.
- ▲ Power amplifier input phono connector to enable two amplifiers to be connected together to provide ten inputs.
- ▲ 24V DC output.



Features:

- ▲ Two 0dB balanced line inputs which have selectable priority and rear mounted independent gain controls.
- ▲ Priority selectable by DIL switch.
- ▲ Internal option socket. Can be used to add frequency equalisers, etc.
- ▲ Output level indicator.
- ▲ Busy input indicator.
- ▲ Output stage protected by thermal shut down in event of unsuitable load.
- ▲ 30V 1.5A output for powering mixers etc.

For specific technical advice on the system, choice of cabling, cabling design or any other aspect of the MITRE range of products, please contact our **Technical Advice Team on: +44 (0) 1892 664422**

mitre Induction Loop Amplifier ~ M10L



The M10L is an audio frequency induction loop amplifier designed to drive loops at up to 10A peak current. A tone control, accessible only from the underside of the amplifier, allows the installer to adjust the frequency response of the amplifier to optimise the performance of the system. An indication of the peak current flowing in the loop is provided by the bar graph display on the front panel, along with limiter and protection indicators.

By selection of a slide switch (located on the rear of the unit) a 1KHz test tone is enabled to assist in the setting up of the loop output. The test tone may also be used to conduct periodic testing of the loop installation.

▲ One M10L is capable of providing an induction loop for a 200 square metre area.

▲ One balanced microphone input, one auxiliary unbalanced line input

Plug-in Option:

MIM16 ~ auxiliary to balanced line converter card. By inserting this card onto the connector inside the rear of the amplifier enables the operator to convert the existing unbalanced auxiliary input into a balanced 80mV 20K Ohm line input.

mitre M10L Technical Specifications

AC supply	220/240V 50/60Hz IEC connector
Quiescent power consumption	12VA
Max power consumption	300VA
Max. Current into loop	10 Amps (peak)
Frequency response	100Hz to 5kHz
Loop impedance	0.6-6.0 Ohms
Tone control	8dB. Lift and cut at 5kHz
LED indicators	Bar graph indicating peak loop current. Limiter indication, Protection indication.
Output stage protection	Over-current limited plus thermal protection (without clipping)
Inputs	Microphone 600 μ V, 600 Ohms balanced, Auxiliary 80mV, 40K Ohms
Fuse protection	Mains input fuse 1 x 3.15A (T), DC fuses 2 x 6.3A (F)

mitre Loudspeaker Loadings

Always ensure that the total loudspeaker load does not exceed the rating of the amplifier used. If unsure use an impedance meter to measure the unknown load. Using a multimeter selected to the resistance range ensures that the loudspeaker line is not connected to earth.

mitre Cabling

Always ensure that the correct cable type is used for the signal level. A twin screened cable should be used for balanced inputs operating at microphone or line level. Zone selection and access control cables do not generally require screening and should not share the same screen as the balanced input.

Loudspeaker cables should be rated in excess of 100V and the cross sectional area to suit the load without excessive power loss. Always ensure that output cables are kept as far away from input cables as possible, reducing the risk of instability.

mitre Also available in the range

M2RACK ~ rack mounting kit for M2120E.

M3RACK ~ rack mounting kit for M2300M and M2300S.

MWALL ~ wall mounting bracket.

MRB ~ rack mounting kit for M10L.

M2000SB ~ Mitre range stacking bracket.

BA100V ~ 100 volt line to microphone/line attenuator (when ordering specify the input it is to feed and we will fit the appropriate audio connector).

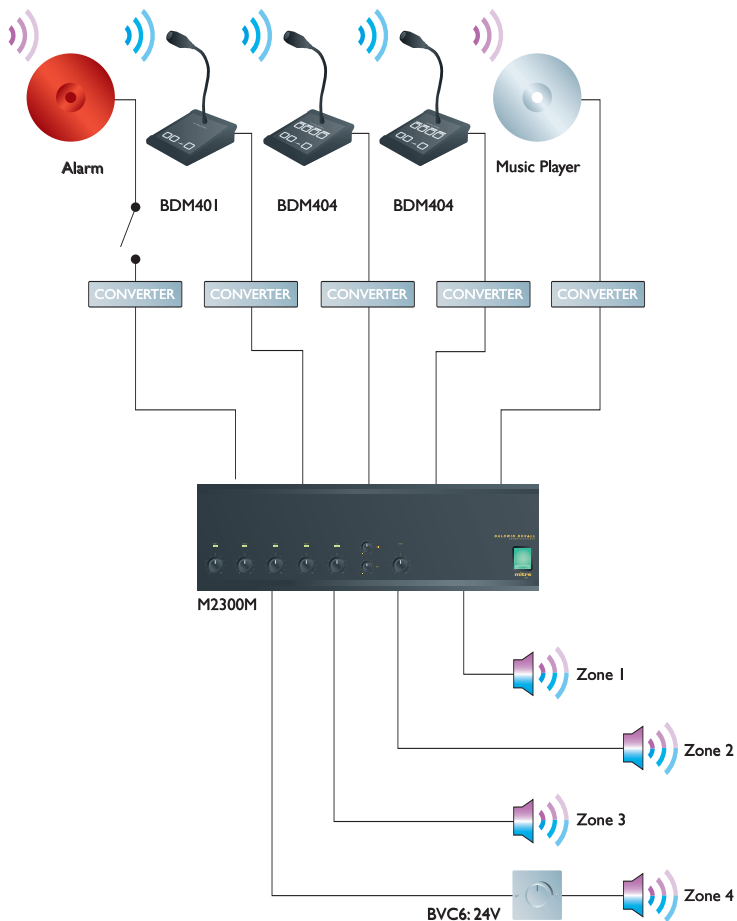
XLRPLG3 ~ XLR 3 pole cable mounting plug, pack of five.

PLUG100V ~ 100 volt output plug.

This example shows a typical four-zone system (three with paging and music and one with paging only), as used in a small office/workshop, using the M2300M which provides the following features:

- ▲ Single zone all call microphone (BDM401 with parallel option selected) – overriding all other inputs.
- ▲ Two-tone alarm signal to all zones overriding descending inputs.
- ▲ Two four zone microphones (BDM404) with three note chime overriding descending inputs. Please note that in order to connect a Mitre amplifier to a BDM400 series microphone a converter is required (BDM400IF).
- ▲ Background music broadcast to all zones – except zone three 'offices'.
- ▲ Local volume control for zone four which is overridden when a paging announcement is made.

A typical PA system:



mitre Technical Specifications

	M2300M	M2120E	M2300S
Rated output power: 100V line 230V AC supply	300W 33 Ohms	120W 83 Ohms	300W 33 Ohms
THD 1 kHz rated output Aux input 230V AC supply	Less than 0.5% typically 0.2%		
Typical output power 1% THD: Aux input 230V AC supply	340W 29 Ohms	100V line 150W 66 Ohms Plus LowZ - 80W 4 Ohms LowZ - 130W 2 Ohms	340W 29 Ohms
Output regulation (1 kHz 100V line)	Better than 1 dB		
Output voltages obtainable (pin selection)	50 & 100V	100V & low impedance	50 & 100V
Supply voltage AC	220-240V 50-60 Hz		
Power consumption @ 230V: Quiescent (no external DC load) Rated output power @ 1 kHz	26VA 700VA	18VA 300VA	26VA 700VA
Fuse protection: 1 x AC supply 20 x 5 mm 2 x DC (amplifier) auto blade type 1 x DC aux output	6.3A(T) 20A(F) 2A(F)	2.15A(T) 10A(F) 1A self resettable	6.3A(T) 20A(F) 2A(T)
Aux input phono stereo summed mono: Sensitivity		100mV @ 30K Ohms 40 Hz-20 kHz	N/A N/A
Frequency response -3 dB		Better than 80 dB	N/A
Signal to noise ratio			N/A
Tone controls: Bass		+ 12 dB @ 100 Hz	N/A
Treble		+ 12 dB @ 12 kHz	N/A
Universal input (line): Sensitivity		80mV @ 12K balanced 40 Hz-18 kHz	2 x with priority gating 0.5V @ 40K Ohms balanced 40 Hz-20 kHz
Frequency response -3 dB		Better than 70 dB	Better than 85 dB
Signal to noise ratio			Better than 40 dB typically 60 dB
Common mode rejection ratio 50 Hz-30 kHz			200 Hz 12 dB/octave
Selectable high pass filter			
Universal input (microphone): Sensitivity		600uV balanced	N/A
Input impedance: Without phantom power With phantom power 15V		12K Ohms 660 Ohms	N/A N/A
Frequency response -3 dB		40 Hz-18 kHz	N/A
Common mode rejection ratio 50 Hz-30 kHz		Better than 60 dB	N/A
Signal to noise ratio terminated 200 Ohms		Better than 60 dB	N/A
System busy output	Open collector 0.5A @ 40V total max.	N/A	N/A
Aux line output level	0 dBm transformer isolated	N/A	N/A
Source impedance	100 Ohms	N/A	N/A
Busy/restoration relay output	2 pole changeover 5A @ 100V max.	N/A	N/A
DC Aux output		30V @ 1.5A max.	
4-zone relay output	5A @ 100V max.	N/A	N/A
LED indicators	1 per universal input (indicates busy state) 1 indicates presence of 24V Aux supply	Output level indicator 5%, 25%, 50% & 100%	1 per universal input (indicates busy state) Output level indicator 5V 25V 50V 100V
Termination: AC supply input Aux signal input Universal input	3-pin DIN IEC 6A 2 x phono, stereo summed mono 6-pin, screw terminated connector+ 3-pin XLR	3-pin DIN IEC 6A 2 x phono, stereo summed mono 3-pin XLR N/A	3-pin DIN IEC 6A N/A N/A N/A
Alarm trigger and 0 dB line output	4-pin, screw terminated connector	N/A	N/A
Busy/restoration relay output	8-pin, screw terminated connector	N/A	N/A
Loudspeaker line output	3-pin, screw terminated connector	4-pin speaker connector	3-pin screw terminated connector
Line signal inputs	N/A	6-pin screw terminal connector	4-pin screw terminated connector
DC Aux output	N/A	N/A	2-pin crimp terminated connector
Fan assisted	Yes	No	Yes
Dimensions (mm) (D x W x H)	340 x 430 x 132	340 x 430 x 90	340 x 430 x 132
Weight	1.18 Kg	1.12 kg	1.18 Kg



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BALDWIN BOXALL COMMUNICATIONS

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 Baldwin Boxall Communications Limited			Low Voltage Directive 73/23/EEC as amended by 93/68/EEC EMC Directive 89/336/EEC as amended by 92/31/EEC and 93/68/EEC Applies only when the items are correctly fitted and operated in or with products of our manufacture and are installed in a recommended enclosure.