

ALLEN & HEATH



MixWizard WZ³12M

16 Input 12 Mix Monitor Console

USER GUIDE

Publication AP6769

Limited One Year Warranty

This product is warranted to be free from defects in materials or workmanship for a period of one year from the date of purchase by the original owner.

To ensure a high level of performance and reliability for which this equipment has been designed and manufactured, read this User Guide before operating. In the event of a failure, notify and return the defective unit to ALLEN&HEATH Limited or its authorised agent as soon as possible for repair under warranty subject to the following conditions

Conditions Of Warranty

1. The equipment has been installed and operated in accordance with the instructions in this User Guide
2. The equipment has not been subject to misuse either intended or accidental, neglect, or alteration other than as described in the User Guide or Service Manual, or approved by ALLEN&HEATH.
3. Any necessary adjustment, alteration or repair has been carried out by ALLEN&HEATH or its authorised agent.
4. This warranty does not cover fader wear and tear.
5. The defective unit is to be returned carriage prepaid to ALLEN&HEATH or its authorised agent with proof of purchase.
6. Units returned should be packed to avoid transit damage.

In certain territories the terms may vary. Check with your ALLEN&HEATH agent for any additional warranty which may apply.



This product complies with the European Electromagnetic Compatibility directives 89/336/EEC & 92/31/EEC and the European Low Voltage Directives 73/23/EEC & 93/68/EEC.

This product has been tested to EN55103 Parts 1 & 2 1996 for use in Environments E1, E2, E3, and E4 to demonstrate compliance with the protection requirements in the European EMC directive 89/336/EEC. During some tests the specified performance figures of the product were affected. This is considered permissible and the product has been passed as acceptable for its intended use. Allen & Heath has a strict policy of ensuring all products are tested to the latest safety and EMC standards. Customers requiring more information about EMC and safety issues can contact Allen & Heath.

NOTE: Any changes or modifications to the console not approved by Allen & Heath could void the compliance of the console and therefore the users authority to operate it.

WZ³12M User Guide AP6769 Issue 1

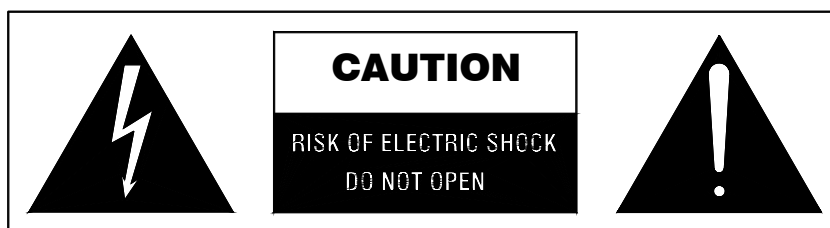
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ALLEN&HEATH Limited

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<http://www.allen-heath.com>

Important Safety Instructions

WARNINGS - Read the following before proceeding :



ATTENTION: RISQUE DE CHOC ELECTRIQUE – NE PAS OUVRIR

- Read instructions:** Retain these safety and operating instructions for future reference. Adhere to all warnings printed here and on the console. Follow the operating instructions printed in this User Guide.
- Do not remove cover:** Operate the console with its covers correctly fitted. Disconnect mains power by unplugging the power cord if the cover needs to be removed for setting internal options. Refer this work to competent technical personnel only.
- Power sources:** Connect the console to a mains power unit only of the type described in this User Guide and marked on the rear panel. Use the power cord with sealed mains plug appropriate for your local mains supply as provided with the console. If the provided plug does not fit into your outlet consult your service agent for assistance.
- Power cord routing:** Route the power cord so that it is not likely to be walked on, stretched or pinched by items placed upon or against it.
- Grounding:** Do not defeat the grounding and polarisation means of the power cord plug. Do not remove or tamper with the ground connection in the power cord.



WARNING: This equipment must be earthed.

- Water and moisture:** To reduce the risk of fire or electric shock do not expose the console to rain or moisture or use it in damp or wet conditions. Do not place containers of liquids on it which might spill into any openings.
- Ventilation:** Do not obstruct the ventilation slots or position the console where the air flow required for ventilation is impeded. If the console is to be operated in a rack unit or flightcase ensure that it is constructed to allow adequate ventilation.
- Heat and vibration:** Do not locate the console in a place subject to excessive heat or direct sunlight as this could be a fire hazard. Locate the console away from any equipment which produces heat or causes excessive vibration.
- Servicing:** Switch off the equipment and unplug the power cord immediately if it is exposed to moisture, spilled liquid, objects fallen into the openings, the power cord or plug become damaged, during lightening storms, or if smoke, odour or noise is noticed. Refer servicing to qualified technical personnel only.
- Installation:** Install the console in accordance with the instructions printed in this User Guide. Do not connect the output of power amplifiers directly to the console. Use audio connectors and plugs only for their intended purpose.



Important Mains plug wiring instructions.

The console is supplied with a moulded mains plug fitted to the AC mains power lead. Follow the instructions below if the mains plug has to be replaced. The wires in the mains lead are coloured in accordance with the following code:

TERMINAL		WIRE COLOUR	
		European	USA/Canada
L	LIVE	BROWN	BLACK
N	NEUTRAL	BLUE	WHITE
E	EARTH GND	GREEN & YELLOW	GREEN

The wire which is coloured Green and Yellow must be connected to the terminal in the plug which is marked with the letter E or with the Earth symbol. **This appliance must be earthed.**

The wire which is coloured Blue must be connected to the terminal in the plug which is marked with the letter N.

The wire which is coloured Brown must be connected to the terminal in the plug which is marked with the letter L.

Ensure that these colour codes are followed carefully in the event of the plug being changed.

General Precautions

Damage : To prevent damage to the controls and cosmetics avoid placing heavy objects on the control surface, scratching the surface with sharp objects, or rough handling and vibration.

Environment : Protect from excessive dirt, dust, heat and vibration when operating and storing. Avoid tobacco ash, smoke, drinks spillage, and exposure to rain and moisture. If the console becomes wet, switch off and remove mains power immediately. Allow to dry out thoroughly before using again.

Cleaning : Avoid the use of chemicals, abrasives or solvents. The control panel is best cleaned with a soft brush and dry lint-free cloth. The faders, switches and potentiometers are lubricated for life. The use of electrical lubricants on these parts is not recommended. The fader and potentiometer knobs may be removed for cleaning with a warm soapy solution. Rinse and allow to dry fully before refitting them.

Transporting : The console may be transported as a free-standing unit or mounted in a rack or flightcase. Protect the controls from damage during transit. Use adequate packing if you need to ship the unit.

Hearing : To avoid damage to your hearing do not operate any sound system at excessively high volume. This applies particularly to close-to-ear monitoring such as headphones and in-ear systems. Continued exposure to high volume sound can cause frequency selective or wide range hearing loss.



Introduction

Welcome to the Allen & Heath **WZ³**, the latest generation of the popular **MixWizard** series of compact audio mixing consoles. We have tried to keep this user guide brief and to the point. Please read it fully before starting. Included is information on installing, connecting and operating the console, panel drawings, system block diagram and technical specification. For further information on the basic principles of audio system engineering, please refer to one of the specialist publications and resources available from bookshops, audio equipment dealers and the Internet.

Whilst we believe the information in this guide to be reliable we do not assume responsibility for inaccuracies. We also reserve the right to make changes in the interest of further product development.

We are able to offer further product support through our world-wide network of approved dealers and service agents. You can also access our Web site on the Internet for information on our full product range, our company pedigree, assistance with your technical queries, our contact details or simply to chat about matters audio (www.allen-heath.com)To help us provide the most efficient service please keep a record of your console serial number, and date and place of purchase to be quoted in any communication regarding this product.

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+48V
 PAD (LINE)
 GAIN
 HPF
 HF
 LM
 EQ IN
 MIX 1
 MIX 2
 MIX 3
 MIX 4
 MIX 5
 MIX 6
 MIX 7
 MIX 8
 MIX 9
 MIX 10
 MIX 11
 MIX 12
 MUTE
 CH TRIM
 PKI
 PFL

PHONES
 LAMP
 MONITOR
 EXT IN
 PFL
 L R
 +16
 +9
 +6
 +3
 0
 -3
 -6
 -9
 -12
 -15
 -18
 -21
 -24
 -27
 -30

MUTE
 AFL
 PKI
 SIG
 1
 2
 3
 4
 5
 6
 7
 8
 9
 10
 11
 12
 STEREO

Introducing the MixWizard WZ³12M

The Allen & Heath MixWizard **WZ³12M** is a dedicated monitor console. With 16 mic/line channels feeding 12 mixes in a compact 19" rack mount frame it is ideal for personal monitoring systems touring with a show or installed on stage where space is tight.

Each of the 16 mic/line channels features a 4 band semi-parametric EQ, high pass filter, 12 mix sends globally switched in pairs for mono or stereo operation, individual phantom power, rotary channel trim control, mute and PFL monitoring. Each of the 12 mix masters includes a fader, mute and AFL monitoring, stereo mode selector, insert and differentially balanced XLR output. Channel and mix master inserts can be used for patching in outboard signal processors such as compressors, noise gates and graphic EQ. Comprehensive metering and stereo/mono PFL/AFL headphones/local monitoring, external monitor input, dual redundant backup supply input, and a lamp socket are provided. An option is available to link two consoles together to expand the number of inputs to 32.

The **WZ³12M** features a built-in XLR mic splitter. This means that inputs can be plugged into the console on stage and simultaneously linked to the multi-core feeding the front-of-house console without the need for an external mic splitter.

The MixWizard Series is built with individual circuit cards, potentiometers nutted to the panel for absolute strength, an all steel chassis, and no compromise circuit design ensuring the finest sonic performance. The console can be operated free standing or in a 19" rack or flightcase. It is supplied with protective side trims fitted. These can be removed for rack mounting. The rear connector pod can be rotated for rear facing or underside connectors when rack mounted.

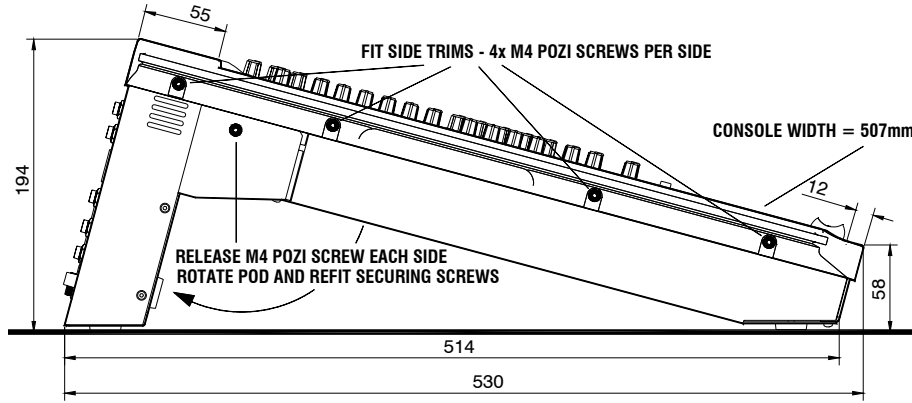
Accessories available include the Allen & Heath MPS12 backup power supply and LED lamp gooseneck lamp with built-in dimmer.



Installing the Console

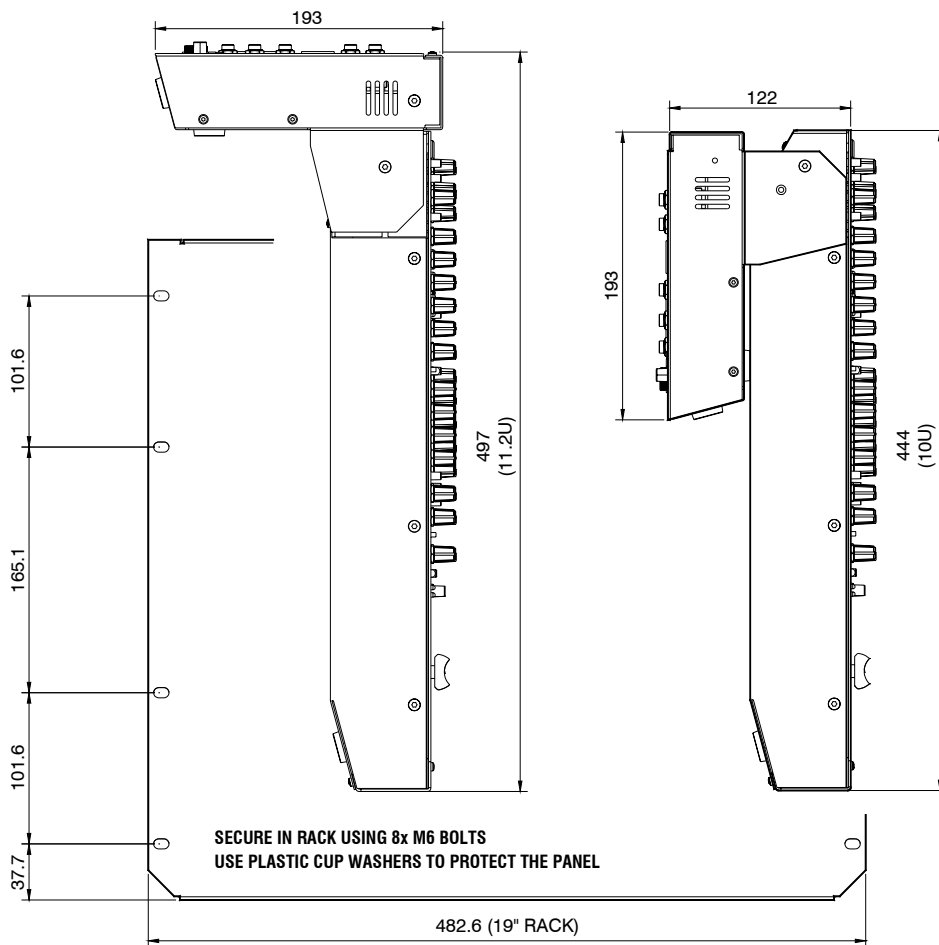
Free Standing

The console is supplied ready for free standing operation with its side trims fitted and connector pod positioned for rear access. If you are converting from rack to free standing then make sure the pod is correctly rotated and secured, and the side trims fitted as shown:



19" Rack Mount

For rack mounting, remove the two side trims and rotate the pod into the connector position preferred. Allow enough space for the cables and connectors behind the console.

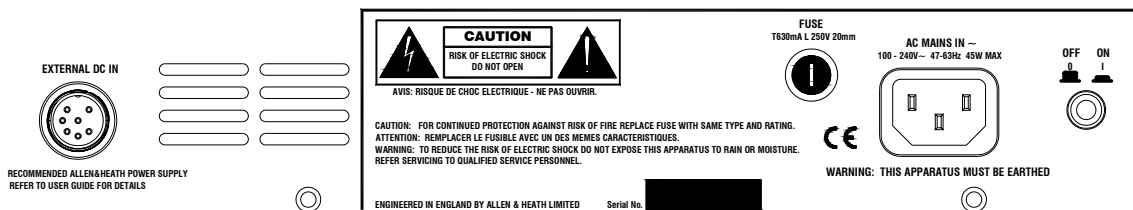


Dimensions	
Free Standing	
Width	507 mm (20")
Depth	530 mm (21")
Height	194 mm (7.7")
Rack Mount	
Top Connectors	
	11.2U
Width	483 mm (19")
Depth	195 mm (1.7")
Height	497 mm (19.6")
Rack Mount	
Rear Connectors	
	10U
Width	483 mm (19")
Depth	125mm (5.1")
Height	444 mm (17.5")
Weights	
	12kg (27 lbs)



Do not transport the console with its connector pod securing screws removed. Do not attempt to remove the connector pod from the console. Do not obstruct the ventilation slots. Allow adequate space around the console for air flow. If the side trims are to be removed, do not refit their fixing screws to the unit. Retain and store these in case the trims need to be refitted in the future.

Connecting Power



Read and understand the **Important Safety Instructions** printed at the start of this guide, and the warnings printed on the rear of the console. Check that your local mains supply is within the 100-240V operating voltage range allowed. Check that the correct mains lead with moulded plug has been supplied with your console. Make sure that the IEC mains plug is pressed fully into the panel socket before switching on.

Grounding

The connection to ground in an audio system is important for two reasons:



1. **SAFETY** - To protect the operator from high voltage electric shock, and
2. **AUDIO PERFORMANCE** - To minimise the effect of ground (earth) loops which result in audible hum and buzz, and to shield the audio signals from interference.

For safety it is important that all equipment grounds are connected to mains ground so that exposed metal parts are prevented from carrying high voltage which can injure or even kill the operator. Do not disconnect the ground connection in the mains lead. It is recommended that the system engineer check the continuity of the safety ground from all points in the system including microphone bodies, turntable chassis, equipment cases, rack metalwork and so on.

Switching the console on and off

It is good practice to turn power amplifiers off before switching the console and any other connected equipment on or off. This prevents any unexpected clicks or thumps when the equipment is powered up.



Turn amplifiers, powered speakers and in-ear systems on last and off first.

To turn the console on, press the ON/OFF switch next to the IEC mains input socket. To turn the console off, press this switch again.

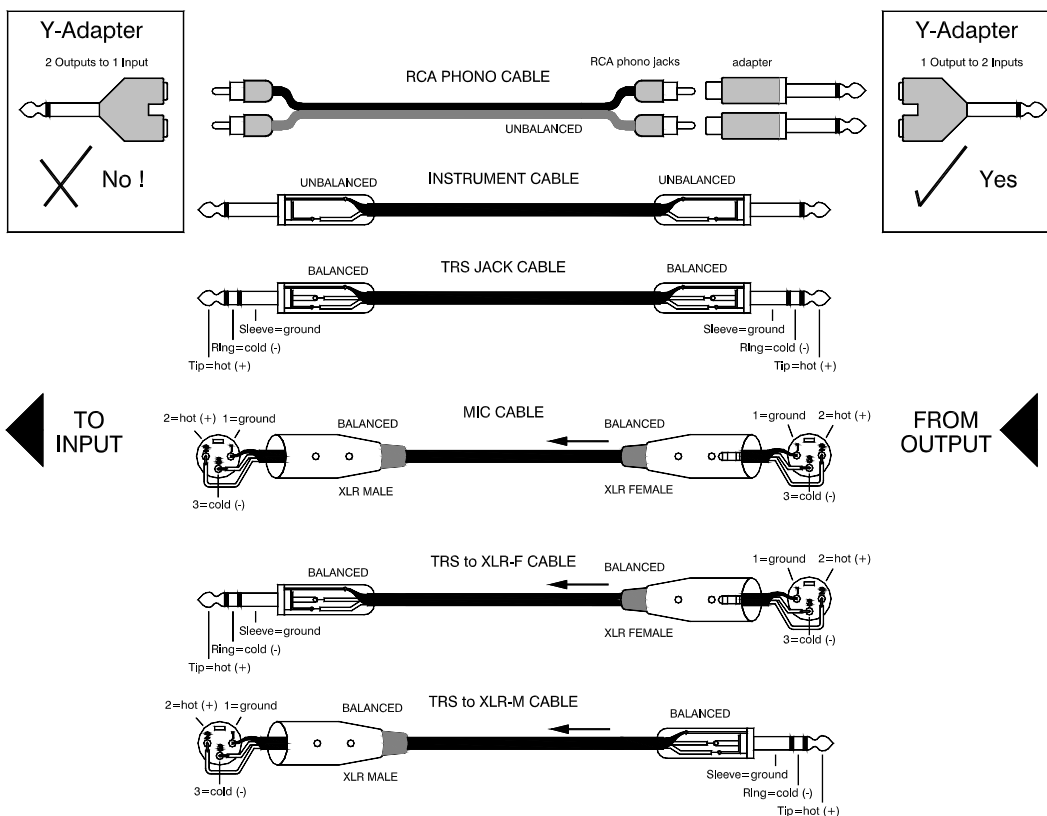
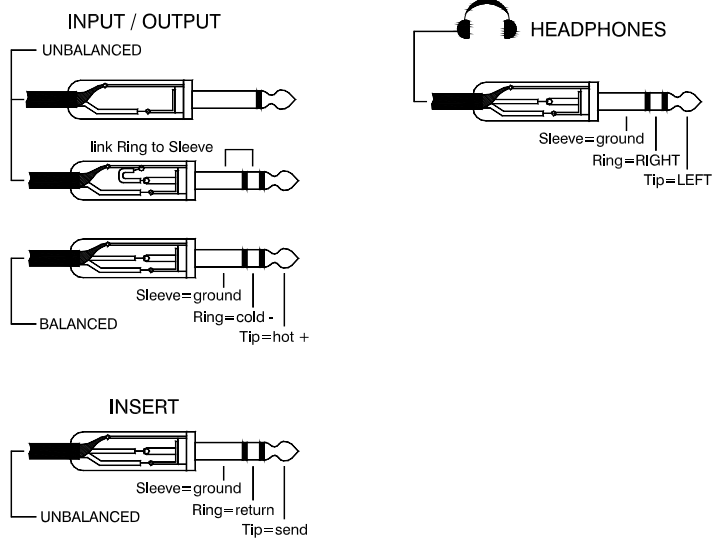
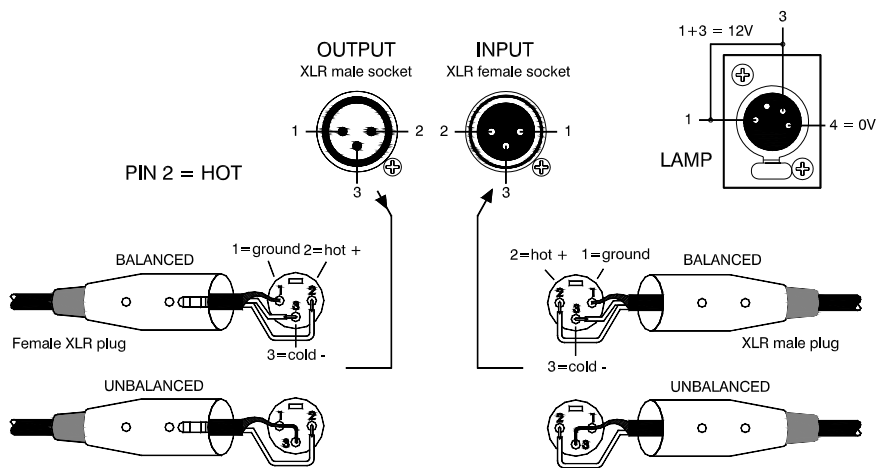
Connecting a backup supply

A socket is included for plugging in an optional backup power supply. This provides the reassurance of power supply dual redundancy, a feature usually found only in expensive top end consoles. The console uses diode combining technology so that both supplies can be powered at the same time. One will automatically take over should the other stop working. The recommended backup supply for the MixWizard is the Allen & Heath **MPS12** power unit. Refer to the user guide which comes with this supply.



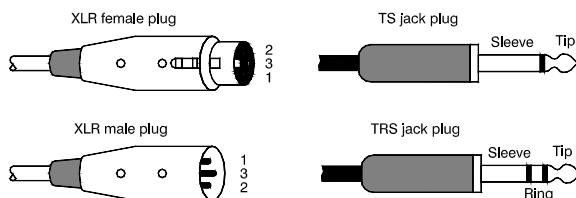
Only plug the recommended Allen & Heath power unit into this socket. Do not attempt to modify any other power unit to work with the console. Do not attempt to modify or extend the DC power cable that comes with the supply.

The console can work with just the internal supply powered by mains, or just the backup supply, or with both powered at the same time. To ensure uninterrupted performance in the unlikely event of a failure, we recommended that both supplies are powered.



Audio Connections

The MixWizard uses professional grade 3 pin XLR and 1/4" TRS (3 pole) jack sockets. To ensure best performance, we recommend that you use high quality audio cables and connectors, and take time to check for reliable and accurate cable assembly. It is well known that most audio system problems are due to faulty or sub standard interconnecting leads. The following mating plugs may be used to connect audio signals to the console:



Avoid reversing + and - on balanced connections as this will result in reversed polarity (out of phase) signals which may cause signal cancellation effects.

Where long cables runs are required, balanced interconnections should be used. However, line level interconnections between more affordable 2-wire (signal, ground) unbalanced equipment and the console are unlikely to cause problems if the cables are kept shorter than 10 meters or so. Refer to the wiring diagrams on the opposite page.

Dealing with Ground Loops, Buzz and Interference

For optimum performance all audio signals should be referenced to a solid, noise-free ground (earth) point, frequently referred to as the 'star point' or 'clean earth'.

A ground loop is created when potential differences exist between grounds at different points in the system, and the signal has more than one path to ground. In most cases ground loops do not result in audible problems. Should you experience hum or buzz caused by a ground loop, check first that each piece of equipment has its own separate path to ground. If so, operate ground lift switches on connected equipment in accordance with the instruction manuals. Alternatively disconnect the cable screen at the destination end only. This breaks the offending loop while keeping the signal shielding down the length of cable.



WARNING For operator safety do not remove the ground (earth) connection in the power lead of the console or connected equipment.

To avoid interference pickup keep audio cables away from mains power units and cables, thyristor dimmer units, computer equipment and mobile phones. Where this cannot be avoided, cross the cables at right angles to minimise interference

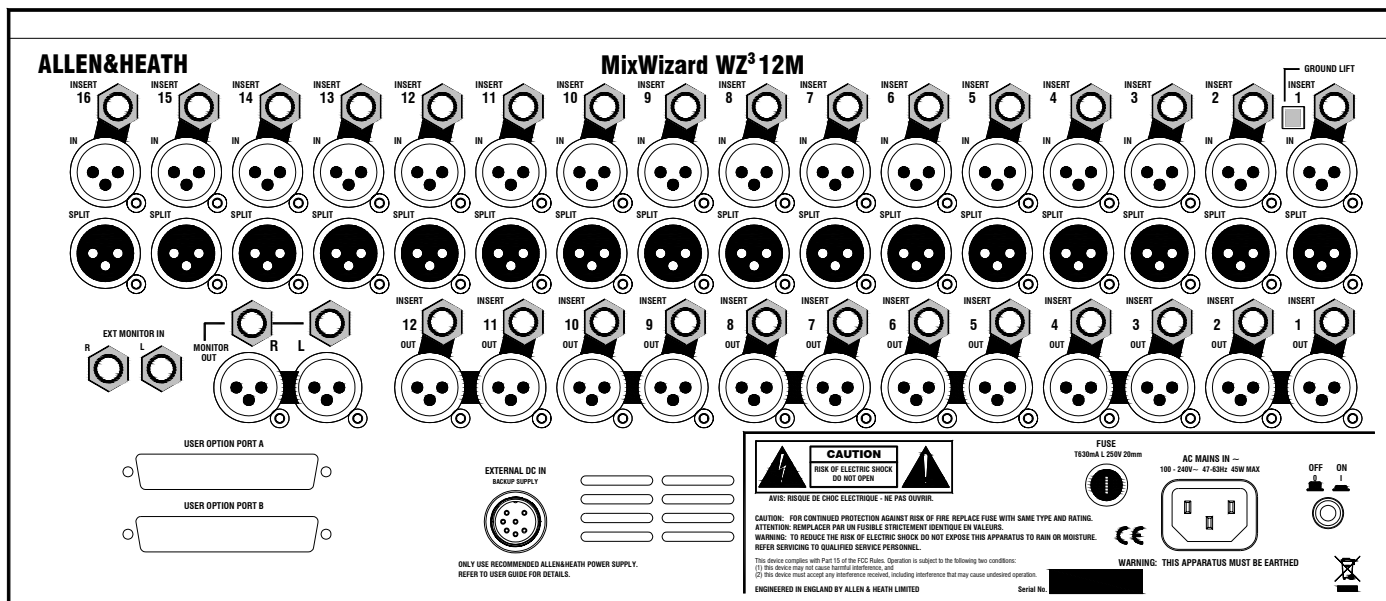
A note about balanced connections



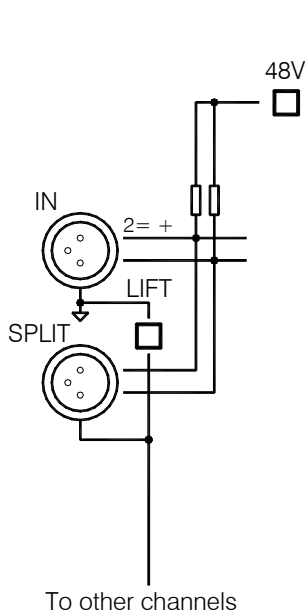
A differentially balanced connection has two signal wires, signal + (hot) and signal - (cold) and a shield. The signal source generates positive going polarity down the + wire and negative polarity down the - wire. The destination input stage accepts the + signal on its non-inverting (+) input pin, but it inverts the - signal, adding it to the + signal. The result is that the wanted signal is boosted. Now examine what happens when unwanted interference (hum and noise) is induced into the cable. The noise is induced equally and with the same polarity into both wires. At the destination input the - wire signal gets inverted and added to the + signal. Because the polarity is the same on both input wires the noise cancels itself out at this input. For this interference rejection to work it is important that the source, the cable and the destination input are all balanced. Balancing provides greatest advantage with low level signals such as those produced by microphones.

An impedance balanced output provides similar interference rejection, but without the signal drive on the - wire. It does not generate a negative polarity signal at its - output. Instead, the - wire has no signal but is held at the same impedance as the + wire. This means that both wires pick up the noise equally resulting in cancellation as described above.

The Console Connectors



CHANNEL INPUT Balanced XLR input pin 2 hot. Accepts microphone or line level signals. For very hot mic or for line signals press the channel PAD (LINE) switch. For unbalanced sources use a cable or adapter that connects XLR pin 3 to pin 1.

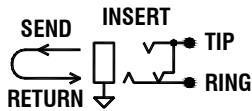


WARNING: Do not connect unbalanced sources or cables to the XLR input when 48V phantom power is selected. To avoid loud clicks always turn the channel off by pressing MUTE when switching +48V on or off, and when plugging or unplugging cables.

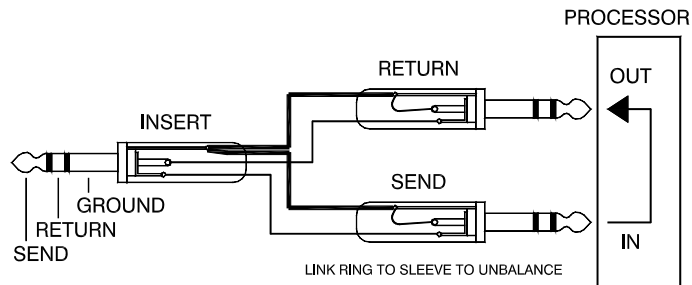
BUILT-IN MIC SPLITTER A passive splitter passes each channel XLR input directly through to an XLR output to send the signal to another console such as Front-of-House or recording. The mic signal can feed the monitor and the FOH console at the same time. Connect the split outputs to the multicore feeding the FOH console using XLR cables.

NOTE: Phantom power can be switched from either the monitor or the FOH console. If switched from FOH then make sure GND LIFT is not selected. If it is necessary to select GND LIFT then phantom power should be switched from the monitor console. No harm will be done to the consoles if phantom power is switched from both consoles at the same time.

GND LIFT Disconnects the pin 1 ground connection between the input XLR and the split output XLR. Press this if there is a problem with a venue ground loop causing audible hum when connecting the splitter to the second console. A single ground lift switch is provided next to CH1 input. This affects the ground connection to all the channel split outputs.



CHANNEL INSERT A single 3-pole TRS jack carries the unbalanced insert signal. Tip = send, Ring = return, Sleeve = common ground. The channel insert is post-HPF, pre-EQ and operates at 0dBu. Use these to patch in line level signal processing equipment such as compressors, gates or outboard EQ. The wiring of a suitable cable is shown in the diagram:



MIX INSERT Each mix is provided with an insert socket for patching in an outboard signal processor. When working with stage speakers this is typically a 31 band graphic or a multi band parametric EQ used for ringing out feedback or tuning the speaker response. When working with in-ear systems this may be a dynamics processor with limiter to protect the in-ear user's ears from unexpected signal peaks. AFL monitors the signal after the insert so that the engineer can listen to the effect of the processor. A single 3-pole TRS jack carries the unbalanced insert signal for each mix output. Tip = send, Ring = return, Sleeve = common ground. The insert is pre-fader and operates at a nominal -2dBu line level.

MIX OUT The 12 mix outputs are provided on balanced XLR, pin 2 hot. These produce +4dBu when the meters read '0'. The mix outputs feed the stage monitors, typically wedge loudspeakers and in-ear personal monitoring systems. They can also be used as effects sends, recording feeds and for other special requirements.

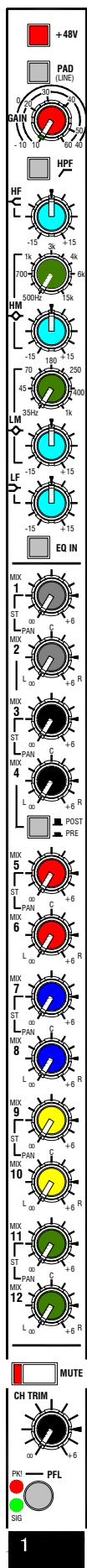
MONITOR OUT The console stereo monitor is simultaneously sent to the headphones amplifier, a pair of balanced XLR outputs and a pair of impedance balanced TRS jack outputs. The XLR output operates at nominal +4dBu, the TRS jack at -2dBu. The XLR and jack outputs can be connected to the engineer's local speaker or in-ear monitoring systems. The output may be switched for mono or stereo operation.

HEADPHONES OUT The console is provided with two headphones sockets on the front panel – a 1/4" TRS jack and a mini 3.5mm jack for plugging in standard headphones or monitor ear pieces similar to those worn by the performers.

EXT IN Unbalanced 1/4" jacks, 0dBu line level signal. Feeds the stereo AFL mix when switched on. For mono signals, plug into the left input only. Use this input to add an external signal such as the monitor output from an in-ear transmitter rack or remote talkback to the engineers monitor.

USER OPTION Blank plates are fitted here as standard. The Sys-Link II console expander option kit may be fitted here.

The Input Channels



+48V Switches +48VDC to the channel input XLR for powering microphones or DI boxes that need phantom power. The power is current limited through 6k8 ohm resistors to pins 2 and 3.

WARNING: Do not connect unbalanced sources or cables to inputs with phantom power selected. To avoid loud clicks always mute the channel before switching +48V on or off and when plugging or unplugging microphones.

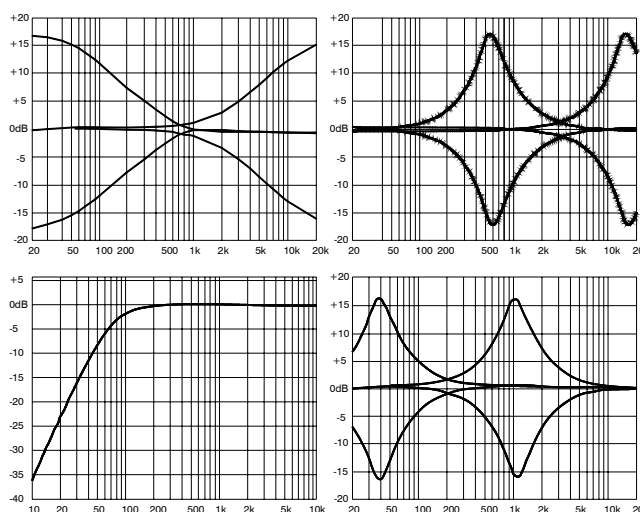
PAD (LINE) Press to switch in a 20dB attenuator pad between the channel XLR input and the preamp. Use with line level or hot microphone signals.

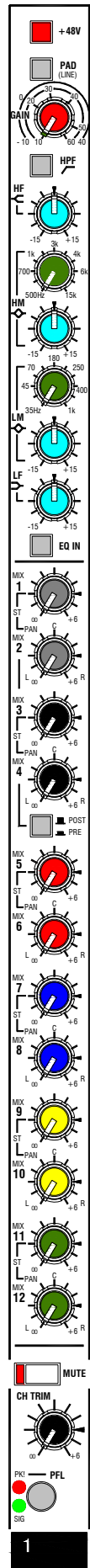
GAIN Adjusts the input sensitivity to match the connected source to the internal 0dBu operating level of the channel. Provides a variable 50dB range from +10 to +60dB gain (mic), or -10 to +40dB (line, pad selected). The gain should be set using PFL so that the console meters average '0' with loudest moments lighting '+6'. Reduce gain if the red peak indicator lights.

HPF Switches in the channel high pass filter. This attenuates frequencies below 80Hz by 12dB per octave. The filter is pre-insert, pre-EQ. Select the HPF to reduce low frequency noise such as microphone popping, stage noise and tape transport rumble.

EQ A 4-band semi parametric EQ provides independent control of four frequency bands. HF and LF are shelving filters which affect high frequencies above 12kHz, and low frequencies below 80Hz respectively. HM and LM are bell shaped peak/dip filters which affect frequencies around a centre point which can be swept from 500Hz to 15kHz and 35Hz to 1kHz respectively. These have a width (Q) of 1.8. All bands can be boosted or cut by up to 15dB and have a centre detent 0dB position.

Check for the best microphone selection and placement before using the EQ. Start with the EQ set flat and apply only as much boost or cut as is really needed. When dealing with problem frequencies cut rather than boost where possible.





MIX SENDS These rotary controls adjust how much channel signal is sent to the 12 mix outputs. Each has its own control. They adjust from fully off to +6dB boost. Unity gain 0dB is marked at 3 o'clock position. Factory default settings should satisfy the most common applications:

- All sends = Post-EQ
- Sends 1-4 = Switched pre/post using POST/PRE switch
- Sends 8-12 = Post-trim (post-fade)

Some of these settings may be changed if preferred by soldering internal jumper link options. Refer to the system block diagram for further information on these options. This work should be referred to an authorised Allen & Heath service agent.

POST/PRE When pressed, the pre-trim (fade) channel signal is sent to auxes 1-4. When released the post-trim signal is sent.

In monitor mixing, the channel sends are usually set post-trim. This means the channel trim control (fader) can be used as a master level for that source feeding all mixes.

Stereo or Mono Odd/even pairs of mixes can be configured for mono or stereo operation by setting a recessed mode switch near the master faders. In MONO mode two independent sends are available. In stereo mode, the odd numbered send becomes a stereo level control and the even send becomes a pan control to position the sound within the stereo LR image. Any combination of mono and stereo mixes may be configured. Before starting, configure how you want the console to work by setting the STEREO switches in the master section.

MUTE When pressed the channel signal is turned off. This affects the feed to all mixes but does not affect the insert send. The red indicator lights when the channel is muted.

CHANNEL TRIM This is the channel fader. Use the control to adjust the level feeding all post-trim mix sends. It lets you make an adjustment to compensate for a change in source level, to make a quick level change affecting all mixes, or deal with a problem such as feedback. Alternatively you could use it to create a starting point mix for several monitors. For normal operation, start with CH TRIM set to its 0dB (unity gain) position (3 o'clock – marked with an arrow).

PFL Press PFL to listen to the pre-trim channel signal in the headphones and local engineer's monitor without affecting the mix outputs. The PFL signal overrides and currently selected mix AFL signal. The console monitor LR meters display the channel signal. The red PK indicator half lights to show that PFL has been selected on that channel. Selecting more than one PFL at the same time mixes those signals together in the monitor.

PEAK The red indicator illuminates when the channel signal is within 5dB of clipping. This gives you enough warning to reduce the GAIN control before you hear signal distortion. It senses the audio at three points in the signal chain – pre-insert, pre-trim and post-trim.

SIGNAL The green signal presence indicator lights when the channel pre-fade signal is greater than -12dBu.

MUTE Turns off the mix output. Affects the meter but does not affect the mix AFL function. This means you can mute the output while checking the post-fade mix signal using the console headphones and engineer's monitor output.

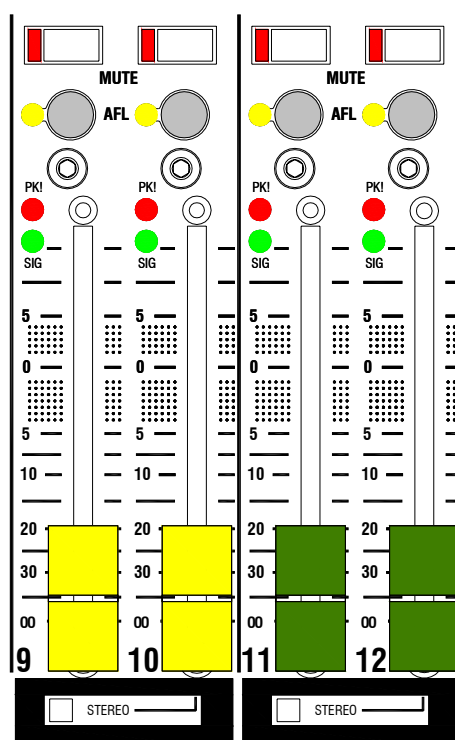
AFL Listen to the mix output in mono or stereo. Routes the post-fade, pre-mute mix output to the engineer's monitor system. The yellow LED lights when AFL is selected. If two mixes are configured as a stereo pair, pressing one AFL checks that mix in mono, and pressing both AFL together checks the mix in stereo in the headphones and monitor outputs.

PEAK The red indicator illuminates when the mix signal is within 5dB of clipping. This gives you enough warning to reduce the level before you hear signal distortion. It senses the audio at two points in the signal chain – pre-insert and post-fade.

SIGNAL The green signal presence indicator lights when the mix post-fade, post-mute signal is greater than -12dBu.

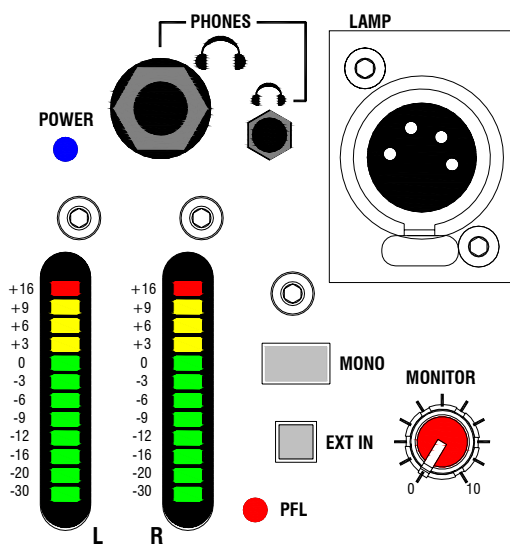
STEREO mode switch Pressing the switch configures the related odd/even numbered mixes for mono or stereo operation. In MONO mode (switch flush with panel), two independent mono mixes are provided. In STEREO mode (switch below the panel), the top (odd numbered) channel send becomes the stereo send level control, and the lower (even numbered) control becomes the pan control to position the signal between L and R within the stereo image. The switch is recessed below the panel to protect it from accidental operation. Use a pen or pointed object to change the setting.

FADER A 60mm fader provides accurate control of the mix output. Boost of +10dB is available above the nominal '0' position. For normal operation the fader should be operated around its '-10' to '0' position. If the fader needs to average higher or lower than this check the gain structure between the console and the connected equipment.



The Engineer's Monitor

The console provides left and right engineer's monitor outputs on XLR and TRS jacks. The monitor signal is also fed to a built-in headphone amplifier with ¼" and 3.5mm output jacks. An AFL (after fade listen) function is provided to monitor the mix output signal. This is interrupted by pressing a channel PFL (pre fade listen) switch. An external input lets the engineer add an external stereo signal such as in-ear transmitter monitor output or talkback feed to the AFL mix.



HEADPHONES The headphones amplifier feeds two sockets on the front panel – ¼" TRS for plugging in standard headphones, and 3.5mm jack for plugging in headphones or ear pieces fitted with a mini jack.

MONITOR LEVEL Adjusts the level of the monitor signal sent to the headphones and local monitor outputs.

MONO Press to sum the left and right monitor signals into mono.

EXT IN Press this switch to add the external mono or stereo input signal to the AFL mix. This signal is overridden by any selected PFL.

PFL The LED indicator lights when a channel PFL switch is selected to warn that any currently selected AFL or external input signal is being overridden by the PFL signal.

12 SEGMENT METERS The 12 segment LED meters show the level of the left and right engineer's monitor signals. They display the true PFL or AFL level and are not affected by the monitor output level control.

LAMP Plug in a gooseneck 12V console lamp fitted with 4-pin XLR connector. We recommend you use the Allen & Heath LEDlamp long life LED lamp with built-in thumbwheel dimmer.



How the levels between the different signal stages are set up is referred to as the gain structure. For best performance it is important that the connected source signals are matched to the 'normal operating level' of the console. Similarly the levels of the connected amplifiers and destination equipment should be correctly matched to the console outputs. If set too high then the signal peaks will be clipped resulting in distortion, and if set too low then the signal-to-noise performance will be degraded resulting in excessive background hiss and noise.

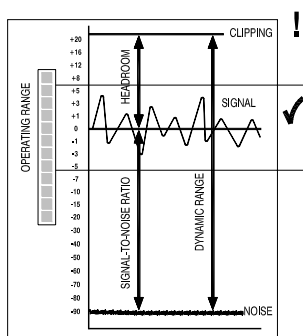
Using the Meters The MixWizard provides metering of inputs and outputs. For best results operate the console with the main meters averaging around '0' allowing the loudest moments to reach '+6'. Reduce the channel gain settings if the red peak indicators start to flash. Note that the peak indicators light 5dB before actual clipping to warn that you are nearing distortion and should reduce gain. The LED bar meters have a 'quasi-peak' response with fast attack and slow release so that fast musical transients are accurately displayed.

Matching a Source to the Console Start by turning down the channel send levels to prevent unexpected loud volumes reaching the speakers and monitors. Using PFL, adjust the GAIN control for an average '0' reading on the console meters. These automatically switch to show the channel pre-fade signal when PFL is pressed. Listen to the signal using headphones or local monitor. Once the channel gain is correctly set you can raise the send levels to bring the channel into the mix. Note that you may need to adjust the gain if you make significant changes to the EQ. Make sure that any equipment inserted into the channel is set to operate around 0dBu line level. First set the gain with inserted signal processors such as compressors switched to bypass.

Matching the Console to Destination Equipment The console produces a standard XLR output level of +4dBu for a meter reading of '0'. It can produce a maximum of +26dBu which is more than is usually required and therefore gives you plenty of headroom. If you are connecting to a sensitive power amplifier it is advisable to turn down its input trim control if the normal console level is too high. Simply turning down the console output faders degrades the output stage noise performance and reduces the resolution of the fader movement. The output faders are best operated around '-10' to '0' for loudest average volume required. This allows additional headroom if you need it.

Terminology The normal operating level is the optimum signal level for best console performance, indicated by '0' meter readings and resulting in the +4dBu XLR output level. The channels operate at 0dBu and the mix stages at -2dBu for extended headroom. Headroom is the extra level available above normal to allow for loud peaks before the signal becomes clipped resulting in audible distortion. The signal-to-noise ratio (SNR) is the difference measured in dB between normal level and residual noise floor (hiss) produced by the console electronics. The dynamic range is the sum of headroom and SNR representing the maximum signal range possible from quietest to loudest.

Final word... A little care with setting gain structure throughout the signal chain will give you the best performance and most manageable control of the mix.



Specifications

Performance

Maximum output level	XLR	+26dBu into 600 ohms max load
	Jack	+21dBu into 2k ohm max load
Internal headroom	Channels	+21dB
	Mix	+23dB
Meters	3 colour LED, quasi peak response	
Sensitivity	0VU = +4dBu at XLR output	
Master meters	12 segment	-30 to +16dB
Channel meters	2 segment	-12, +16dB (5dB before clip)
Frequency response	20Hz to 50kHz	+/-0.5dB
THD+n at +10dBu 1kHz	Channel to mix out < 0.004%	
Crosstalk at 1kHz	Fader shutoff	>90dB
	Channel mute	>95dB
	Inter channel	>90dB
Noise, rms 22Hz to 22kHz	Mic EIN	-128dB
	Residual output noise	< -92dBu (-96dB S/N)
	LR unity fader mix noise	< -80dBu (-84dB S/N)
Channel HPF	12dB/octave below 80Hz	
Mono EQ	HF	Shelving, +/-15dB, 12kHz
	HM	Peak/dip, +/-15dB, 500Hz to 15kHz, Q=1.8
	LM	Peak/dip, +/-15dB, 35Hz to 1kHz, Q=1.8
	LF	Shelving, +/-15dB, 80Hz
Stereo EQ	HF	Shelving, +/-15dB, 12kHz
	HM	Peak/dip, +/-15dB, 2.5kHz, Q=1.8
	LM	Peak/dip, +/-15dB, 250Hz, Q=1.8
	LF	Shelving, +/-15dB, 80Hz
Power supply	Internal	100-240V, 50/60Hz auto sensing, IEC input
	External Input	for optional MPS12 backup supply
	Power consumption	45W max
	Mains fuse	T630mA L 20mm

Mechanical

Free standing dimensions	W 507 (20") x D 530 (20.9") x H 194 (7.7")	
Rack mounted Underside connectors	W 483 (19") x D 122 (4.8") x H 444 (17.5") 10U	
Rack mounted Rear connectors	W 483 (19") x D 193 (7.6") x H 497 (19.6") 11.2U	
Weight	12kg (27lbs)	

Connections

Mono channel	XLR balanced pin 2 hot	Sensitivity -60 to +10dBu
	Pad in	Sensitivity -40 to +10dBu
	Pad out	2k ohm
	Pad in	>10k ohm, -20dB
	Max input level	+30dBu
	XLR phantom power	+48V, on/off
Ext Input	TRS unbalanced	>5k ohm, 0dBu
Inserts	Channel	TRS, tip send, ring return, 0dBu
	Output	TRS, tip send, ring return, -2dBu
Mix outputs	XLR balanced pin 2 hot	<75 ohm, +4dBu, +26dBu max
Monitor output	TRS impedance balanced	<75 ohm, -2dBu, +21dBu max
	XLR balanced pin 2 hot	<75 ohm, +4dBu, +26dBu max
Headphones	TRS, tip L, ring R,	30 to 600 ohm headphones recommended
Lamp	4-pin XLR	max 12V 5W lamp

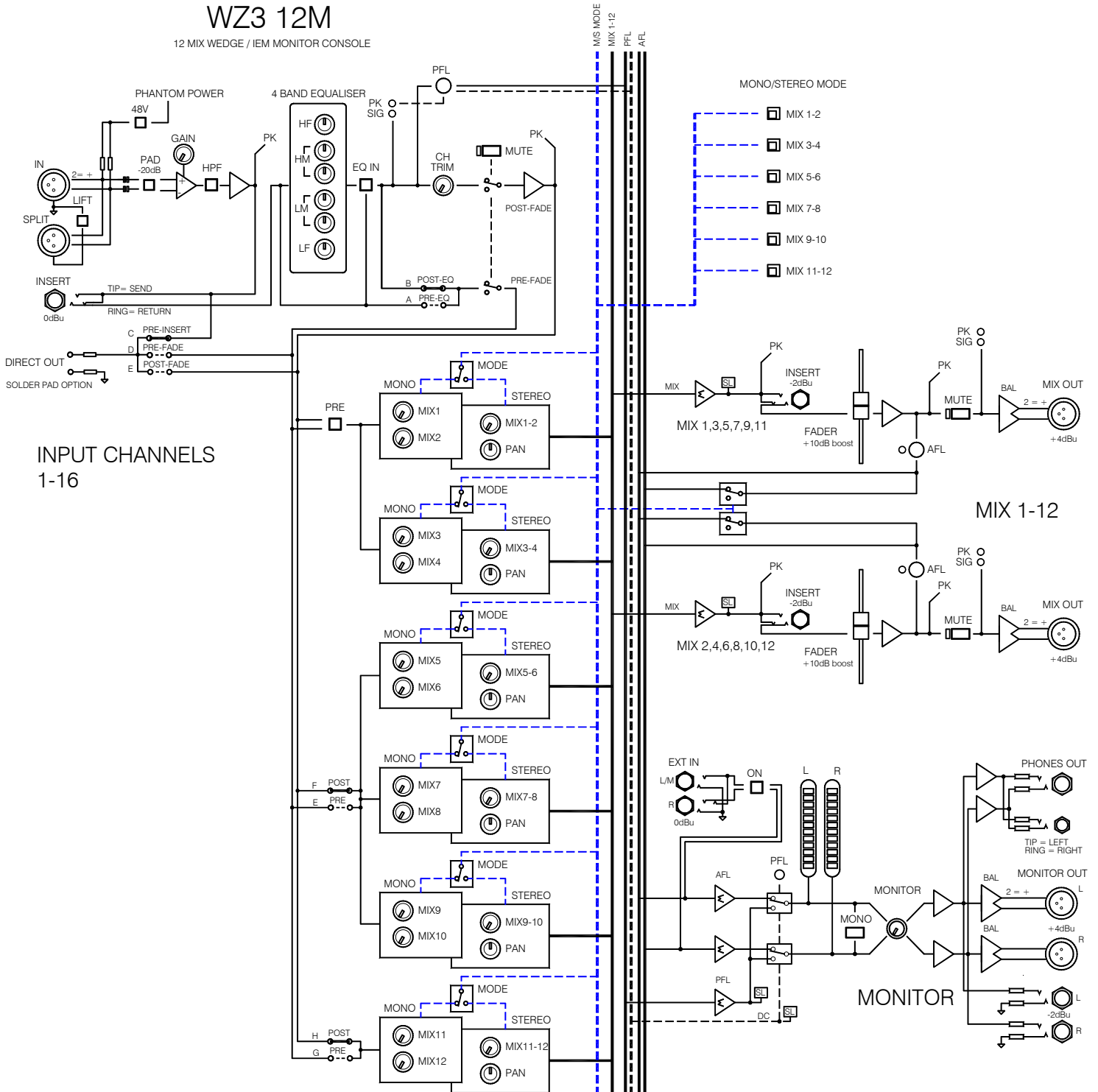
MixWizard 3 Series Part Numbers

WZ ³ 12M	16 mic/line, 12 mix monitor console	W3MON-12/v
WZ ³ 12:2	8 mic/line, 2 dual stereo, LR console	W31222/v
WZ ³ 16:2	16 mic/line LR console	W31622/v
WZ ³ 14:4:2	10 mic/line, 2 dual stereo, 4 group console	W31442/v
WZ ³ 20S	4 mic/line, 8 dual stereo console	W320S/v
WZ ³ 12:2 and WZ ³ 16:2	Sys-Link II output option kit	W312/16-SLV2
WZ ³ 14:4:2	Sys-Link II input/output option kit	W31442-SLV2
Allen & Heath MPS12	backup power supply option	MPS12/v
Allen & Heath	18" gooseneck LED lamp	LEDLAMP

System Block Diagram

WZ3 12M

12 MIX WEDGE / IEM MONITOR CONSOLE



Copy and use this page to record your console settings.

ALLEN&HEATH MixWizard WZ³12M 12 MIX WEDGE / IEM MONITOR CONSOLE

The diagram illustrates the control surface of the Allen & Heath MixWizard WZ³12M 12 Mix Wedge / IEM Monitor Console. It features 16 channels, each with a fader, HPF, PFL, and MUTE controls. The channels are numbered 1 through 16. The master section includes stereo faders, MUTE, AFL, and PFL controls. The monitor section includes a monitor fader and MUTE control. The diagram is a black and white line drawing of the console's control surface.