Focusrite
audio engineering

Thank you very much for buying the Blue 300 Mastering Controller.

Focusrite products enjoy a prestigious reputation in the world of music recording and mastering.

This is the result of an almost fanatical approach to audio design coupled with unique industrial design. Build and component quality are also extremely important to us.

Put together, these attributes result in products which hopefully exceed the expectations of those people who buy and use them.

To ensure this is the case I would ask you to complete the Ownership Registration card and return it to us in England, whether you are resident here or overseas. This will help us to monitor customer reaction and also enable us to mail you with future information. We will also copy the data to your local distributor.

In the event that you are dissatisfied in any way with the product, the supplying dealer or the service you receive, please write to me personally.

We are very interested in the successful use of our products and welcome comments and suggestions. If there is a product you wish we made, we'd love to hear about it.

In conclusion, I wish you success and hope you enjoy your Focusrite. Thanks for your custom.

Yours Sincerely

Phil D

Phil Dudderidge
Managing Director

Contents

Warranty: All Focusrite products are covered by a warranty against manufacturing defects in material or craftsmanship for a period of one year from the date of purchase. Focusrite in the UK, or its authorised dealer worldwide will, at its own discretion, repair or replace any defective product. This warranty is in addition to your statutory rights.
This warranty does not cover any of the following:

- Carriage to and from the dealer or factory for inspection or warranty
- Consequential loss or damage, direct or indirect, of any kind, however caused
- Any damage or faults caused by abuse, negligence, improper operation, storage or maintenance

If a product is faulty please first contact your dealer in the country of purchase; alternatively, contact the factory. If the product is to be shipped back, please ensure that it is packed correctly, preferably in the original packing materials. We will do our best to remedy the fault as quickly as possible.

Please help us by completing and returning your Focusrite Warranty Registration Card. Thank you.

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Introduction

The Blue 300 is designed to provide the ultimate analogue stereo monitor control system for mastering or any critical listening application.

The main design criteria for the system were to provide convenient desktop control combined with an audio path which is totally transparent and neutral.

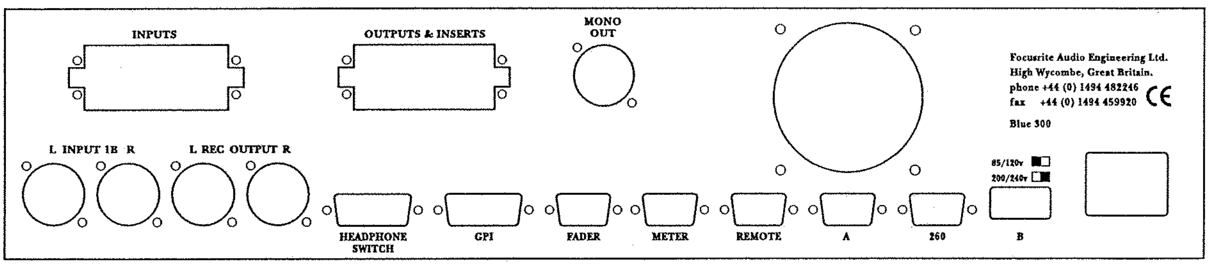
The Blue 300 consists of an oval shaped Remote control panel which is connected by a digital interface to a 2U rackmounting Master module which houses all the analogue audio electronics.

The system has 8 stereo analogue inputs, a stereo Record path with two parallel outputs and a stereo Monitor path with three sets of loudspeaker outputs.

In addition, it is possible to add up to 6 Digital inputs to both the Record and Monitor path by using 2 x Blue 260 D/A convertors; input selection for these can be controlled by the Remote.

Connecting the Unit

Audio Connections

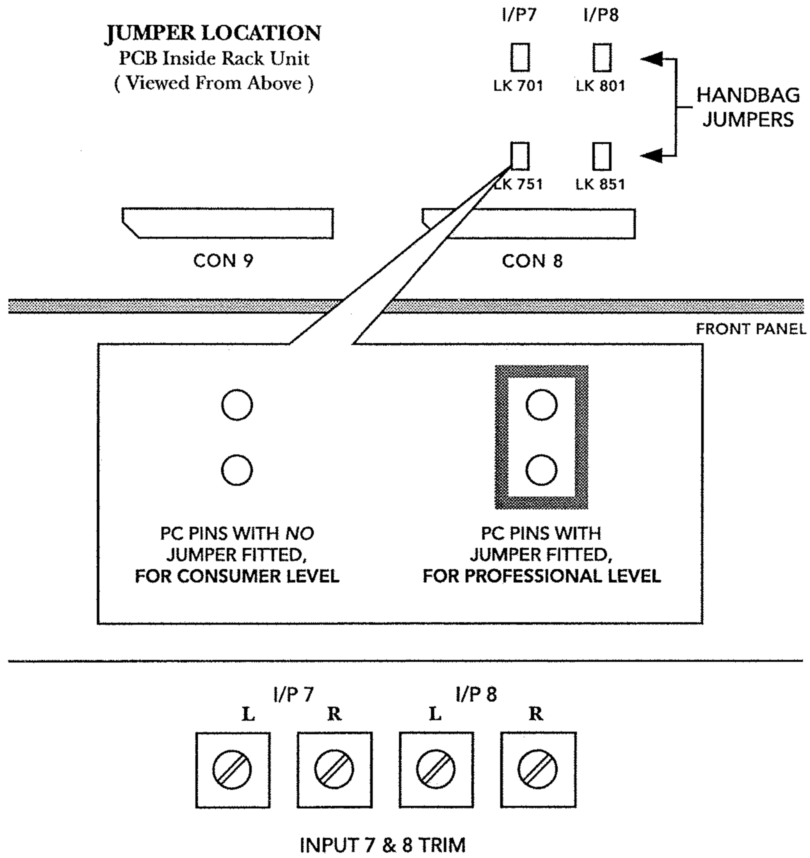


Audio input and output connections are made via EDAC connectors on the back of the unit. The pin connections are:

EDAC 1 (Inputs)

		EDAC Pin No.		
Description	cct	+	-	scr
Input 1L	1A	A	E	L
Input 1R	1B	B	F	M
Input 2L	2A	C	J	N
Input 2R	2B	D	K	P
Input 3L	3A	R	W	a
Input 3R	3B	S	X	b
Input 4L	4A	U	Y	c
Input 4R	4B	V	Z	d
Input 5L	5A	k	p	u
Input 5R	5B	l	r	v
Input 6L	6A	m	s	x
Input 6R	6B	n	t	y
Input 7L	7A	z	DD	KK
Input 7R	7B	AA	EE	LL
Input 8L	8A	BB	HH	MM
Input 8R	8B	CC	JJ	NN

- Inputs 1-6 are professional level (+4 dB)
- Inputs 7 and 8 are switchable between professional level (+4 dB) and consumer level (-10 dB). As supplied by Focusrite, they are set to professional level. To set to consumer level, set the jumpers on the board as shown in the picture. Inputs 7 and 8 are also trimmable by ± 6 dB using trims under the front panel.



EDAC 2 (Outputs and inserts)

Description	cct	EDAC Pin No. +	-	scr
Insert Send 1L	1A	A	E	L
Insert Send 1R	1B	B	F	M
Insert Send 2L	2A	C	J	N
Insert Send 2R	2B	D	K	P
Insert Return 1L	3A	R	W	a
Insert Return 1R	3B	S	X	b
Insert Return 2L	4A	U	Y	c
Insert Return 2R	4B	V	Z	d
Main LS Out L	5A	k	p	u
Main LS Out R	5B	l	r	v
Mid LS Out L	6A	m	s	x
Mid LS Out R	6B	n	t	y
Mini LS Out L	7A	z	DD	KK
Mini LS Out R	7B	AA	EE	LL
Record Out L	8A	BB	HH	MM
Record Out R	8B	CC	JJ	NN

Voltage Setup

The unit's voltage rating is set by the 230/115 switch. Check that the voltage selected is correct for your country.

Internally, the unit's operating voltage can be set for 100/200V, 110/220V or 120/240V operation. This is set in the factory to the correct voltage range for its intended country - if you change countries, you may need to have this reset by qualified service personnel.

Mono Out Connector

The mono out connector is a line level output used for connecting a mono speaker or a talkback speaker.

If you connect a speaker to this connector, you need to set switches on the front panel to enable you to use it. See the Setting up the Unit section below.

Input 1B

Input 1B allows you to connect a second Blue 260 D-A Convertor to the unit. This allows you to work from two digital sources (for example, monitoring one digital source while recording a different digital source), and control both Blue 260 units from the Blue 300's remote panel.

When you connect two Blue 260 units:

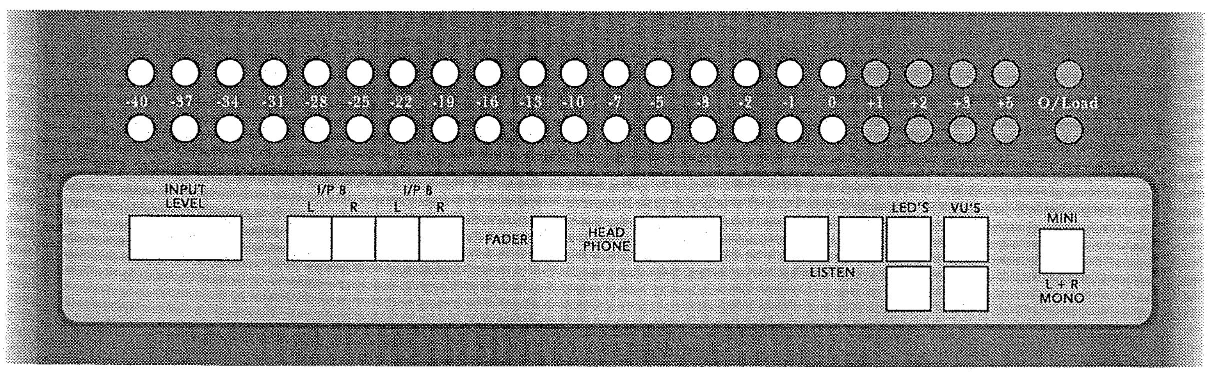
- The unit connected to Input 1A is routed to the monitor path
- The unit connected to Input 1B is routed to the record path

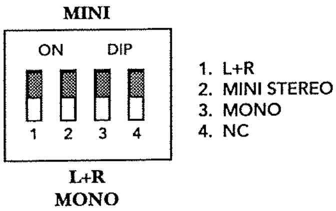
Rec Out

This is an extra record out connected in parallel with the EDAC record out. This allows you to record on two separate devices without the need for an extra distribution amp.

Setting up the Unit

Behind the front panel are various trims and dip switches that need to be set to your requirements.





L+R

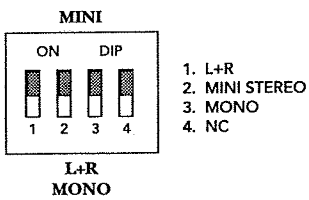
The L+R dip switch determines what happens when you select L+R on the remote panel. Settings are:

- On. The signal is routed to the mono speaker
- Off. The signal is routed in mono to the currently-selected speakers

Mini stereo/mono

Selecting Mini speakers on the remote panel routes the signal to either the mini speakers or the mono speaker, depending on the setting of this dip switch:

- On. The signal is routed to the mono speaker when you select mini speakers
- Off. The signal is routed to the mini speakers in stereo when you select mini speakers

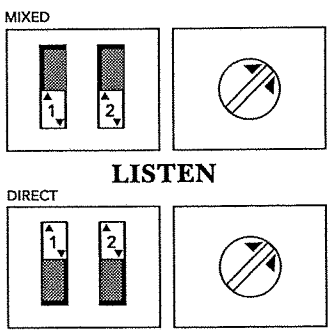


Mono

The mono dip switch determines what happens when talkback is selected via the GPI port:

- On. The talkback vocal is routed to the mono speaker. Note that setting this switch overrides the Listen dip switches described below
- Off. The talkback vocal is routed to the currently-selected speakers

If talkback vocal is routed to the mono speaker, its output level is adjustable via the Listen trim behind the front panel.



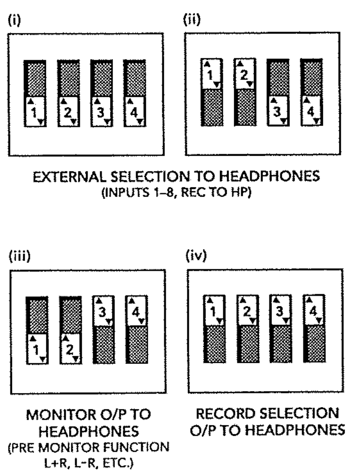
Trim available only when MONO on is selected on previous dip switch

Listen

The listen dip switches are always set as a pair, and determine whether talkback is sent direct or mixed with the music. Note that if you have selected the mono speaker (see the Mono section above), then talkback is always direct to the mono speaker, and these dip switches are ignored.

Settings for the listen dip switches are:

- Mix. Talkback is routed to the currently-selected speakers, in mono mixed with the stereo monitor mix
- Direct. The music is muted, and the talkback alone is routed in mono to the currently-selected speakers.



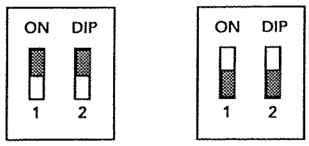
Headphones

The headphones dip switches determine whether the headphones are connected to the record path or the monitor path, or whether they are controlled by an external switcher. For details of wiring the external switcher, see Optional Connections below.

The headphones dip switches are set as two pairs:

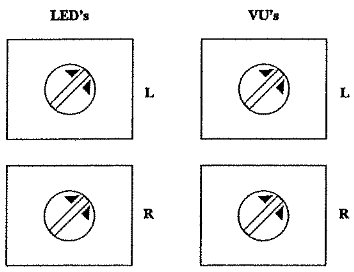
	UP	DOWN
1&2	Connected to record path	Connected to monitor path
3&4	Internal	External

Note that switches 1&2 only work if switches 3&4 are set to internal. If switches 3&4 are set to external, switches 1&2 are ignored.



FADER BYPASS OFF
ANALOGUE FADER
BEING USED

FADER BYPASS ON
NO ANALOGUE FADER



FRONT PANEL LED
VU METER TRIMS

EXTERNAL VU METER
TRIMS

Fader

A fader can be connected to the unit to control the volume of the record path, after the trim control. The fader bypass dip switches specify whether or not an analogue fader is connected to the unit.

The fader bypass dip switches are always set as a pair:

- Up. No analogue fader is connected
- Down. An analogue fader is connected

Setting up the Meters

The unit's internal meters can be trimmed from behind the front panel. They should be set so that an input sine wave of 4 dBU displays as 0 dB VU.

If you have an external VU meter connected, the VU output can also be trimmed from behind the front panel.

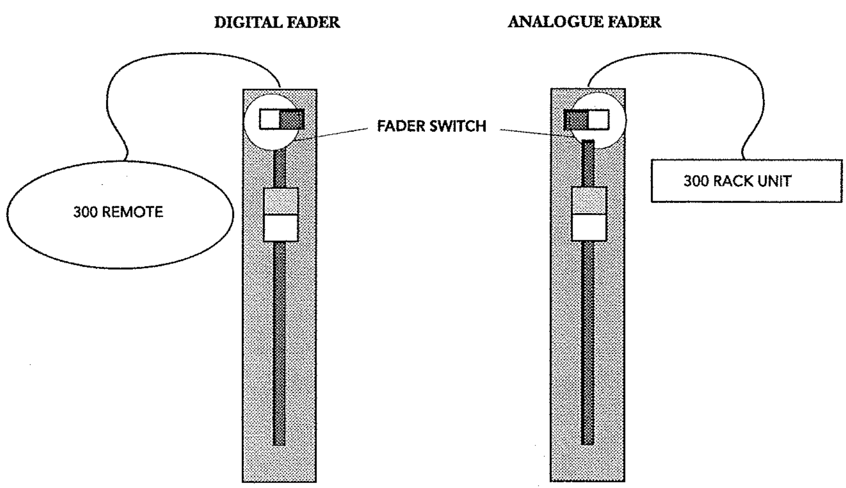
Optional Connections

Connecting a Fader to the Record Path

Optionally, a fader can be connected to the unit to control the volume of the record path, after the trim control. The fader can be connected digitally (via the remote), or as analogue (into the back of the unit):

- Digital fader controls the gain element in the record path
- Analogue fader is actually in the record path

Note that if you connect an analogue fader, you must also set the Fader dip switches, as described under Setting up the Unit.

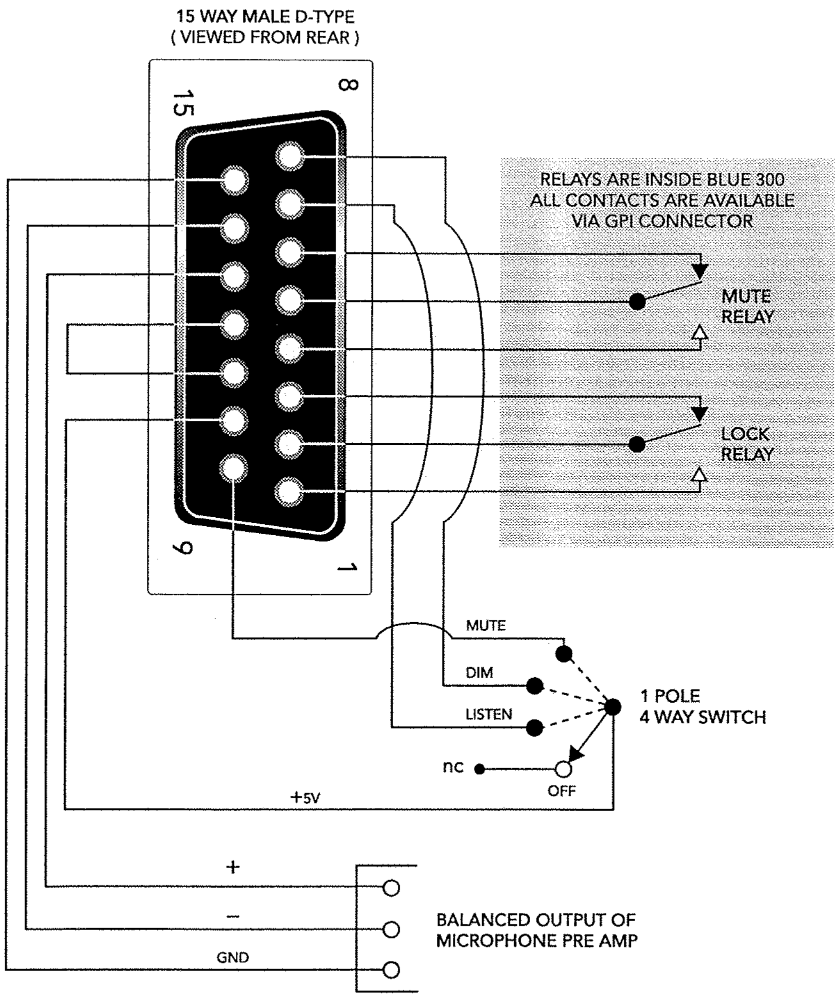


Using the GPI Port

The GPI port allows you to:

- Connect a talkback microphone
- Control talkback, dim and mute using an external switch
- Access relay closures associated with the mute and lock functions

The GPI port is wired as follows:



Connecting a Microphone for Talkback

To connect a talkback microphone, you connect a balanced female XLR to the GPI port.

Input to the unit is at line level; the microphone's gain is controlled by an external mic preamplifier such as a Focusrite Red 8.

If you want to use talkback, you must also connect an external switch to the GPI port, as described in the next section.

Adding an External Switch

To allow talkback, or to control the dim and mute functions externally, you add an external switch to the GPI port. (See wiring diagram earlier.)

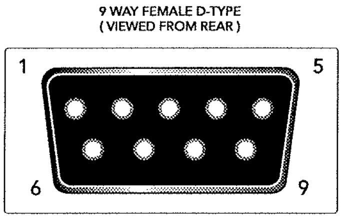
- **Talkback**. When this is set via the external switch, tb is displayed on the remote panel.
- **Dim and mute.** Setting one of these via the external switch illuminates the switch on the remote panel, and disables the switch.

Accessing the Mute and Lock Relay Closures

These relay closures are accessible via the GPI port to allow, for example, a red light to be illuminated when the Lock switch is enabled. (See wiring diagram earlier.)

Note that these relays are rated at 1A at 30V DC, or 0.5A at 125V AC.

Connecting an External Meter



Optionally, you can connect an external meter to the unit. The unit has the following meter connections:

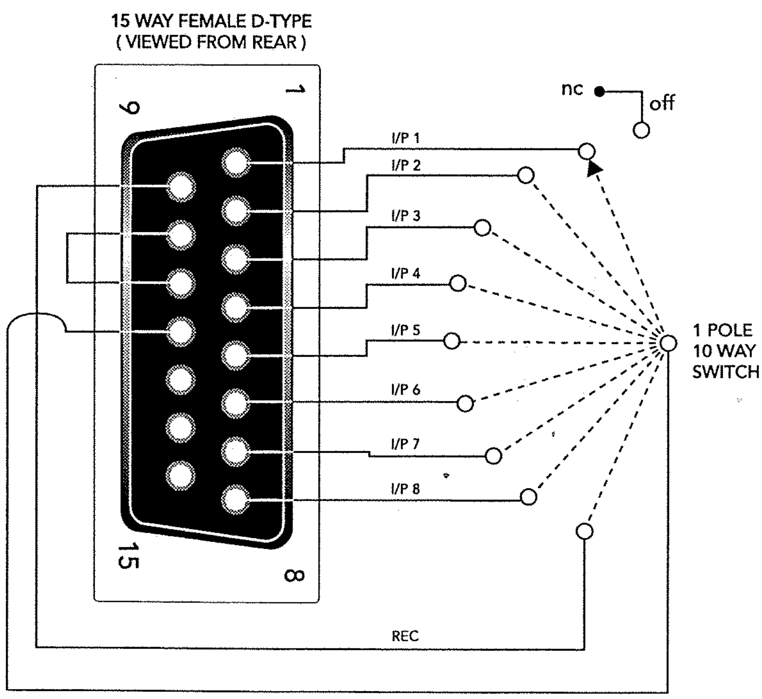
- VU out, for connection to a VU meter
- Straight meter out, for connection to PPMs, for example, or to a VU meter that has its own ballistics
- Meter light power supply, for use with Focusrite's VU meter panel

External Meter Wiring

Signal Label	Con4 Pin No.
Ext meter L+	1
Ext meter L–	2
Audio gnd	3
Ext meter R+	4
Ext meter R–	5
Audio gnd	6
V+ for Illumination	7
VU out R	8
VU out L	9

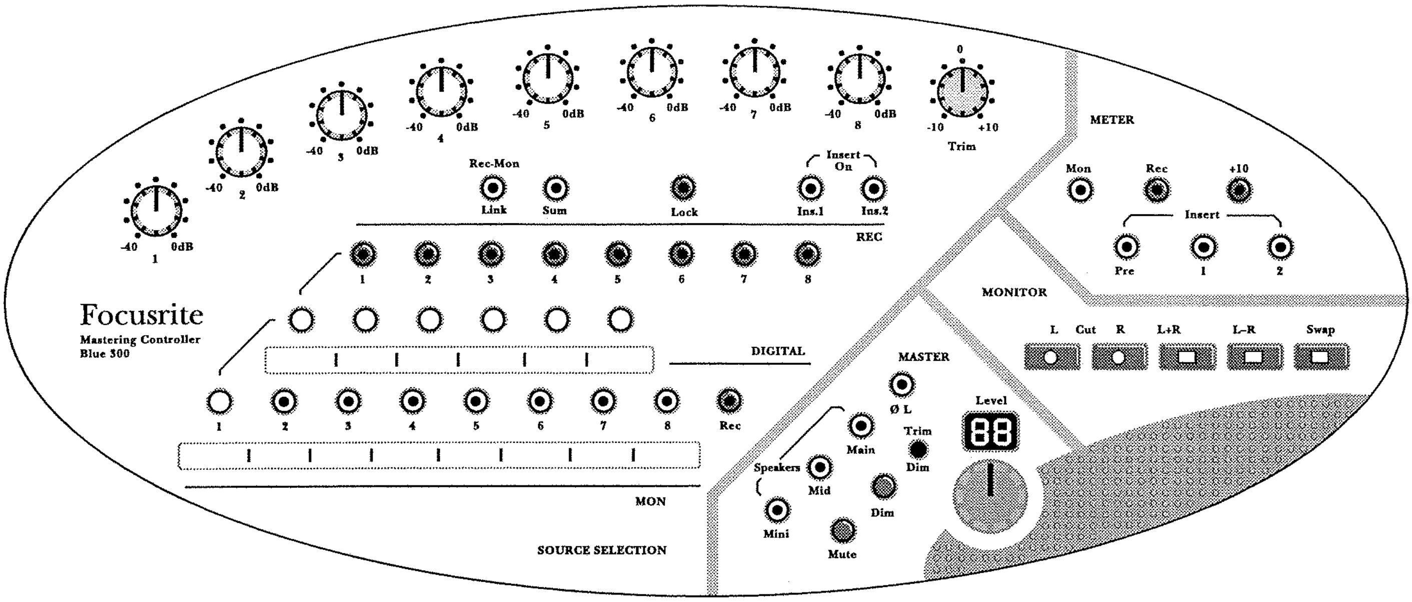
Controlling Headphones Using an External Switcher

Using an external switcher allows you to use headphones to listen to any of the 8 inputs, or to the record path. The wiring diagram of an external switcher is shown below.



Remote Panel

The remote panel is used to control all of the functions of the Blue 300 (except headphones and GPI functions), and to control up to two Blue 260 D-A Convertors connected to the unit.



Source Selection

From here you can select:

- One or more inputs to send to the record path
- An input from a Blue 260 connected to the unit
- Whether to monitor an individual input or the record path
- Whether the insert points are switched in or out of the record path

Link switch

Links the monitor path to the record path, so that selecting an input in either MON or REC selects it in the other. This option does not work if the record path is locked, or if the inputs are summed (Sum light is lit), since summing is not supported in the monitor path.

Sum switch

Sums the selected inputs together in the record path. To use this feature, press the Sum switch followed by the inputs to sum. Once you have selected the inputs to sum, you should lock them to the record path using the lock switch.

Lock switch

Locks the record path to the currently-selected input(s). This is an important feature, as once the record path is locked, you cannot accidentally allocate another input to the record path. Once an input is locked to the record path, you cannot allocate another input to the record path until you press the lock switch again (and so unlock the record path).

The lock switch is particularly useful in dual 260 operation, as it allows you to lock input 1B to the record path, and then select input 1A to monitor another digital source.

Insert On switches

Switch the insert points into the record path. Note that:

- The signal is always sent to the insert points
- Insert 1 is always followed by insert 2

Controlling Blue 260 Units from the Remote Panel

If you have one or two Blue 260 units connected to the Blue 300, you can control them from the remote panel.

If only one Blue 260 is connected, input 1A is routed to both the monitor path and the record path.

If two Blue 260 units are connected, input 1A is routed to the monitor path, and input 1B is routed to the record path.

The digital source selection buttons correspond to the lights on the front panel of the Blue 260, and indicate the selected input. (The first four buttons correspond to the Blue 260's AES inputs, the fifth is the S/PDIF input, and the sixth is the optical input.)

Selecting a digital source automatically selects input 1 in the monitor path, and so routes the digital source to the monitor. To allocate a digital source to the record path:

1. Select the source
2. Select input 1 in the record path
3. Press the lock switch. The lights for input 1 and the selected source flash.

If you have two Blue 260 units connected, you can monitor another digital source from input 1A by selecting it. The source is sent to the monitor path, and its light is stable (the light for the source that is being sent to the record path continues to flash).

Master

From here you can:

- Select the speakers to use
- Invert the phase of the left channel
- Use the Dim switch to reduce the level by a preset amount (set by the Dim Trim control at between 30 dB and 50 dB below the current level)
- Mute the currently-selected speakers
- Set the master level for monitoring. The attenuation is displayed in the LED above the level control:
- 0 = 0 dB attenuation
- 50 = 50 dB attenuation
- - - = switched off (volume at minimum)
- tb = talkback

Speakers

You can run up to three separate sets of stereo speakers from the unit, and a mono speaker for talkback.

When you switch on the unit, mini and mid have infinite attenuation set, and the mains are set at -42 dB. You can set separate levels of attenuation for each set of speakers by selecting them and adjusting the attenuation level - the attenuation level remains in effect as long as the unit is switched on.

Meter

From here you determine the signal that is routed to the meters:

- Mon routes the signal from the monitor path (pre output faders)
- Rec routes the record path output level (post trim)
- Insert lets you monitor the record path at one of three points:
- pre inserts
- after insert 1
- after insert 2
- +10 changes the meter from reading 0 at +4 dBu to reading 0 at +14 dBU

Note that the overload light on the front panel is illuminated if the signal level reaches 20 dB at any of the following points on the record path:

- pre inserts
- post insert 1
- post insert 2
- record to output after faders and trims

Hints & Tips

Listening Tests

The physical installation of the Blue 300 system should be straightforward and explained by other parts of this manual. If you have any problems or questions, please do not hesitate to contact us directly at Focusrite HQ by email, fax or phone.

In any critical listening environment it is fundamental that any changes to the audio system are gradual and are understood by those using the system.

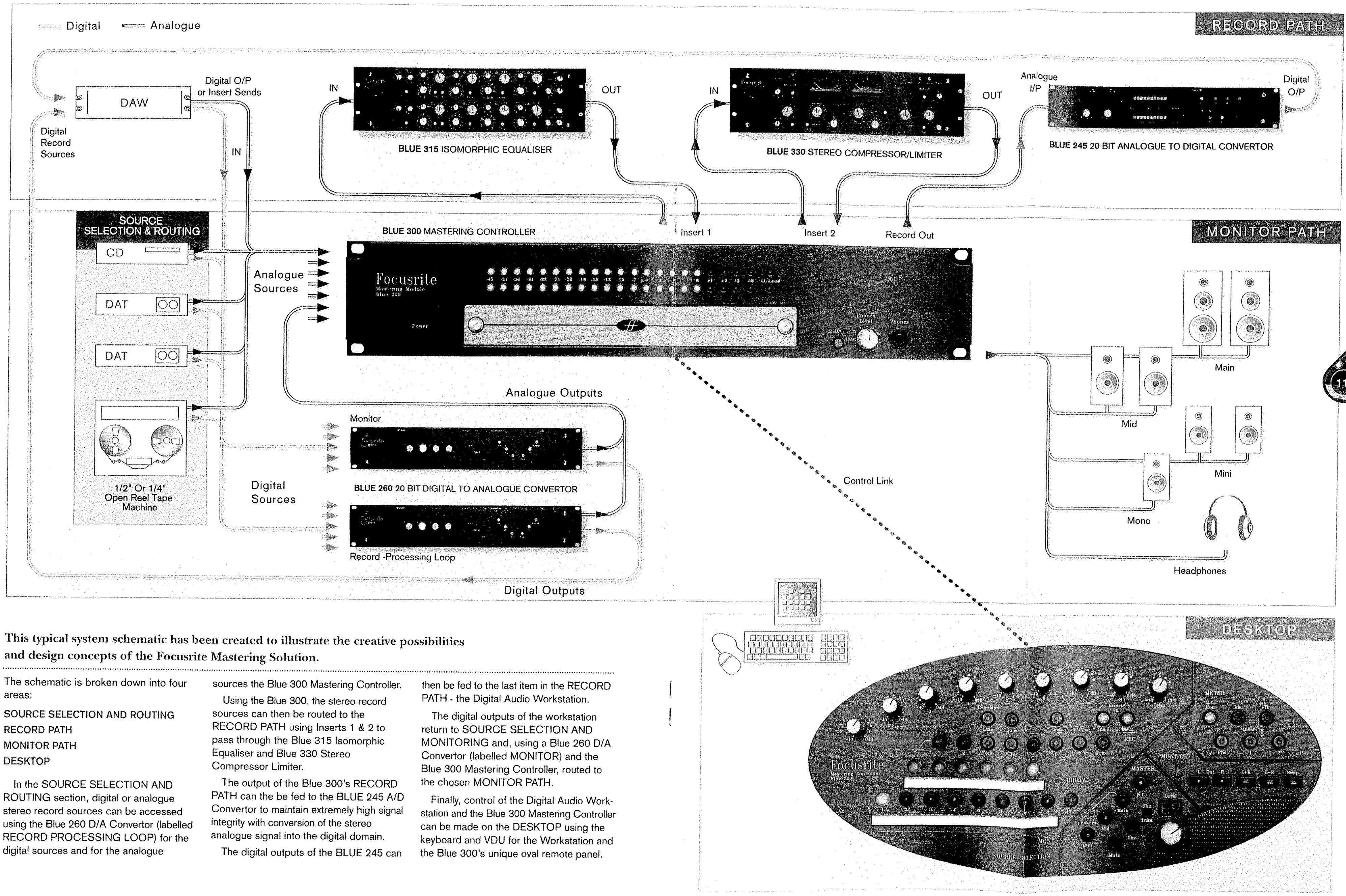
In order to conduct our own listening tests, we have constructed an stereo A/B switch unit combined with a separate signal splitter.

This allows us to directly compare two monitor control systems; however rather than compare against an existing monitor control system we have used a direct source taken from an open reel 1/2" analogue tape machine; injecting directly into the monitor loudspeaker inputs.

In order to protect our eardrums and the monitor system, the output level of the tape machine has been reduced to a suitable level; the object of this test are to use the simplest possible source (avoiding the issues of digital to analogue conversion) and the most direct signal path to the monitor loudspeakers.

Using the A/B box we can monitor the tape machine outputs directly and also via the Blue 300.

This test will give you a benchmark of the accuracy of the audio performance of the Blue 300.



This typical system schematic has been created to illustrate the creative possibilities and design concepts of the Focusrite Mastering Solution.

The schematic is broken down into four areas:

SOURCE SELECTION AND ROUTING
RECORD PATH
MONITOR PATH
DESKTOP

In the SOURCE SELECTION AND ROUTING section, digital or analogue stereo record sources can be accessed using the Blue 260 D/A Convertor (labelled RECORD PROCESSING LOOP) for the digital sources and for the analogue sources the Blue 300 Mastering Controller.

Using the Blue 300, the stereo record sources can then be routed to the RECORD PATH using Inserts 1 & 2 to pass through the Blue 315 Isomorphic Equaliser and Blue 330 Stereo Compressor Limiter.

The output of the Blue 300's RECORD PATH can the be fed to the BLUE 245 A/D Convertor to maintain extremely high signal integrity with conversion of the stereo analogue signal into the digital domain.

The digital outputs of the BLUE 245 can then be fed to the last item in the RECORD PATH - the Digital Audio Workstation.

The digital outputs of the workstation return to SOURCE SELECTION AND MONITORING and, using a Blue 260 D/A Convertor (labelled MONITOR) and the Blue 300 Mastering Controller, routed to the chosen MONITOR PATH.

Finally, control of the Digital Audio Workstation and the Blue 300 Mastering Controller can be made on the DESKTOP using the keyboard and VDU for the Workstation and the Blue 300's unique oval remote panel.