Film/Post Production Console Overview Version 1.02

January 30, 2006

console overview

MPC4-D Console Overview Table of Contents

1.0 TERMS AND CONDITIONS

1. **Acceptance.** Orders can only be accepted by an authorized officer of Harrison/GLW, Inc. at its home office in La Vergne (Nashville), Tennessee.

2. **Shipping Date.** Harrison/GLW endeavors to meet all scheduled delivery dates, but shipping dates are approximate, and in no event shall Harrison/GLW be liable for any damages caused by delay in shipment, delivery, installation, or the furnishing of services in connection therewith regardless of the reason for the delay.

3. **FOB Point.** All Equipment is sold "Ex Works" the Harrison/GLW factory in La Vergne (Nashville), Tennessee. All freight, delivery, rigging, drayage or handling is Customer's responsibility and Customer shall reimburse GLW for any such charges paid by Harrison/GLW. Harrison/GLW shall not incur any liabilities to Customer by reason of the freight company selected.

4. **Installation.** Commissioning/installation is not included or provided by Harrison/GLW. Commissioning is not included unless included on the quotation. If included, the out of pocket expenses related to commissioning are the responsibility of Customer.

5. **Title/Risk of Loss.** Title and, in all events, risk of loss or damage passes to Customer upon delivery by Harrison/GLW of the Equipment to Customer or a common carrier at Harrison/GLW's factory dock in La Vergne (Nashville), Tennessee. Title and risk of loss or damage shall pass as set forth herein notwithstanding any provision for the furnishing of insurance agreed upon between Harrison/GLW and Customer.

6. **Taxes.** Any sales or use taxes with respect to this equipment sale shall be the responsibility of and paid by the Customer regardless of when such tax or levy is assessed. For this purpose the term "tax" shall include any penalty or interest assessed or charged.

7. **Payment.** Payment of the equipment purchase price shall be made upon terms agreed upon between Harrison/GLW and Customer.

8. **Limited Warranty/Software Use License Agreement.** The Equipment is covered by Harrison/GLW's Standard Limited Warranty Agreement and Harrison/GLW's Standard Software License Agreement. Customer acknowledges receipt of these documents and accepts and agrees to be bound by the terms thereof.

9. **Force Majeure.** Harrison/GLW will not be liable for any failure to perform resulting from its inability to obtain raw materials, parts or supplies at reasonable prices or through usual regular sources or on a timely basis, interruption of transportation, government regulation, labor disputes, strikes, war, fire, flood, accident, or if any other cause beyond Harrison/GLW's control makes it impracticable for Harrison/GLW to perform.

10. **Disclosure of Information.** Any information, suggestions, or ideas transmitted by Customer to Harrison/GLW in connection with the performance hereunder are not to be regarded as secret or submitted in confidence except as may be otherwise agreed in writing signed by a duly authorized officer of Harrison/GLW.

11. **Governing Law.** Any sale of Harrison/GLW Product shall be made under and governed solely by the laws of the State of Tennessee. All matters relating to the interpretation and effect of this Agreement or any amendment hereto shall be governed by the laws of the State of Tennessee. Any action to enforce this agreement or in connection with the transactio contemplated by this agreement may only be brought in a court of proper jurisdiction and venue within the State of Tennessee and Customer submits to such jurisdiction by the purchase and use of a Harrison/GLW Product.

12. **General.** (a) Any products delivered by Harrison/GLW hereunder will be produced in compliance with the Fair Labor Standards Act of 1938. GLW will comply with all federal, state, and local laws, regulations and executive orders determined by it to be applicable as of the date of any quotation which relate to (i) nonsegregated facilities and equal employment opportunity, (ii) Workmen's Compensation, and (iii) the production in GLW's manufacturing facilities of products furnished hereunder. (b) while Customer shall not assign this Agreement or any interest herein without the prior written permission of GLW, this Agreement shall inure to the benefit of and be binding upon all successors and permitted assigns of the parties hereof. (c) The terms of this Agreement shall prevail notwithstanding any variance with the terms and conditions of any order or instrument submitted by Customer. (d) Any representation, warranty, course of dealing or trade usage not contained or referenced herein specifically will not be binding on GLW. (e) No modification, amendment, recision, waiver or other change will be binding unless a signed written amendment. (f) The invalidity, in whole or in part, of any provision of this Purchase Agreement shall not affect the validity of the remaining portion of such provision or the remainder of the Agreement. (g) The terms and conditions of these Terms and Conditions of Sale shall survive the delivery of the Equipment and payment of the purchase price.

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2.0 INTRO AND COMPANY PROFILE

2.0.00 Introduction

True to the Harrison legacy of innovation and functionality, the digital.engine™ is the digital signal processing core created to be the digital backbone for a Harrison control surface. It combines the flexibility of digital audio processing with the stability of proven technology. You gain the freedom that comes with being able to control large numbers of audio sources and make them do exactly what you want them to do. You get the power of digital audio processing, while preserving the familiar Harrison control surfaces and automation systems. Truly, the digital.engine™ is the next logical step in the evolution of Harrison consoles. Because Harrison consoles, especially those equipped with a digital.engine™, are intricate systems, they require accessories and accommodations prior to installation. The information provided in this manual is designed to help you to plan your installation project more efficiently and make informed purchasing decisions.

Additionally, this manual will help to orient you to the system configuration, familiarize you with terminology, explain connector detail, provide system illustrations, explain system requirements and supply other specific console information.

If you have questions about anything you find in this manual, don't hesitate to contact one of our Harrison Product Specialists or a member of our sales team. Our hours are 9AM to 6PM CST, Monday through Friday. Our phone number is (615) 641-7200. We will be happy to assist you in any way.

2.1.00 Company Profile

The first Harrison console was delivered in 1975, marking the first milestone in a long history of technological breakthroughs by Harrison engineers. Since its inception, Harrison has been renowned for technically superior consoles.. The assets of Harrison Systems were acquired by GLW, Incorporated in 1989, but the Harrison product name was retained due to its reputation for superior products and a loyal customer base worldwide. Harrison currently builds consoles for the film-post-production, post-production, broadcast, live performance and music markets.

Over 1500 Harrison consoles have been installed worldwide, constituting a significant share of the overall world market for high-end audio consoles. Currently, more than half of Harrison's customers are international customers, indicative of the reputation and acceptance of Harrison consoles worldwide. Due to the complex nature of audio production, Harrison automated digital and analog consoles now dominate the high-end market worldwide.

Harrison's industry dominance is underwritten by its commitment to engineering excellence. To maintain its leading position in audio technology, Harrison diversifies its R&D efforts into all areas of the audio industry. In markets requiring highly complex automation functionality coupled with superior digital or analog signal processing and extreme flexibility, Harrison is the technical authority. Often facilities will have more than one Harrison console, frequently upgrading their Harrison consoles to take advantage of the newest Harrison technology. We become partners with our customers to develop and refine console technology to meet their continuing needs.

3.0 MPC4-D SYSTEM FEATURES

3.0.00 System Features

The MPC4-D console can accommodate virtually any combination of input sections and custom master section layouts. The entire console can be tailor made to suit the needs of any facility.

Because of this, every MPC4-D comes equipped with many features specially engineered to accommodate the rigors of the film-mixing environment. These features and tools were inspired by close contact with film industry leaders and were created with input from creative professionals.

By design, the MPC4-D is a large-scale, multi-operator console and can be configured as a one, two or three operator desk.

- **Dynamic "Profiling"**
  Any strip can control any channel at any time - Console "Profiles" can be set up in addition to the static layer controls

- **Plug-Ins**
  Software Plug-Ins will allow the user to choose features and functions according to need - Plug-Ins include: De-esser, Camera Noise Filter, Multi-band Compressor, Multi-band Expander, Telephone Filter, Dual crossover EQ, Dual Gated EQ, Linear Phase EQ, Bus Limiters, DSP Insert Point and Sub Harmonic Synthesizer

- **IKIS™ Automation Platform**
  A PCI-based, multi-operator automation system offering 10 EQ shapes, 30 dB gain/cut, expanded dynamics controls and increased control resolution

- **Multiple TFT's**
  Offer vivid graphics controllable via standard pointing devices

- **Control of Outboard Gear**

- **8 Band Parametric EQ**
  With expanded dynamic controls accessible through every channel strip or via Harrison assignable Digital Tools control panel with 8 motorized faders (a Harrison exclusive), or via the graphics TFT's Features include:
  - Expanded EQ control per strip (8 bands) with Notch, Hi/Lo-pass and "Find" selection per band
  - Additional "Range" and "Shape" controls per EQ band
  - Dedicated Compressor and Gate controls per strip
  - Expanded Auxiliary Send controls per strip
  - Expanded Input controls per strip

- **Panning Modes up to 16 Wide (16 discrete signals) on EVERY Channel**
  A Harrison exclusive. 5.1 surround has been available on Harrison consoles for over 15 years. 7.1 surround panning became standard on Harrison consoles in 1991, years before anyone else offered 7.1 as an option. Now Harrison again leads into the future with panning up to 16 wide

- **Full, 40-bit Digital Signal Processing** AND digital interconnects exclusive Harrison technology

3.0 MPC4-D SYSTEM FEATURES

• **Digital Routing Switcher with up to 2240 X 2240 I/O**
Can function as a STAND ALONE router – another Harrison exclusive

Up to 768 Channels per Digital Core
with dedicated full processing on all busses on every channel – No Processing Allocation

All Busses (Total 176 Busses with Full Bus Option) are Available on EVERY Channel at All Times
No buss allocation required
- 96 “stem” busses, sectional or console wide
- 32 auxiliary sends, sectional or console wide
- 32 mix (reassign) busses
- 16 “listen” busses

24 bit A/D and D/A converters (48K or 96K)

Up to 384 X 16 Summing/Monitor Matrix with Level, Mute and Solo

56 (112 optional) virtual PEC/Direct matrix

Multi-colored scheme by section providing overview when looking across the surface.

Light background plastic overlay with streamlined end profile

Motorized, automated, joystick panners
Developed by Harrison, a Harrison exclusive (US Patent # 6264355, covering the use of motorized joysticks for panning in audio consoles)

“Sweet Spot” control per section

Upgrade the digital.engine to 96K or 192K via software

Switchable SRC on both AES Inputs AND AES OUTPUTS in groups of 8

New Backlit parameter displays providing a smooth, clean and readable surface

Backlit input meters diffuse harsh LED’s to provide a smooth surface appearance

Two-toned color scheme by section provides a sharper overview when looking across the surface

Multi-operator control surface configurations with fully integrated automation
accessible on a both sectional (per operator) and console wide basis

3.0 MPC4-D SYSTEM FEATURES

3.1.00 MPC4-D Specialized Tools and Features

Motorized Joysticks

In much the same way as motorized faders have revolutionized the art of fader automation, so have motorized joysticks opened up the art of fully-automated multi-channel panning. Harrison's patented multi-channel panning devices can be attached to any channel or group of channels in the MPC4-D system. The motorized joystick is a relative device and while under automation control is always in the correct position. Touch sensitive handles make updating automated panning as easy as touching and moving the joystick.

Multi-Channel Panning Per Channel

All MPC4-D channels pan directly to the console busses. Each channel provides unlimited virtual panning modes; this feature was designed to accommodate dubbing mixers worldwide. The console panning is expandable to 16-wide for future formats.

Section Solo Options

Sometimes a simple thing can make all the difference on a large-scale system. The MPC4-D offers a Sectional Solo feature so that each mixer can solo input channels independently of and without affecting other mixers audio. The feature can be disabled to allow cross section solos in cases where a single operator is working on a multi-operator system.

Dedicated Remote/Group Faders

While any channel on the MPC4-D can be the master of a group of faders, it is useful to have dedicated remote faders on a console. This becomes evident especially on large systems with multiple channel control layers. Harrison offers dedicated group faders on the MPC4-D. As many as 48 remote/group faders (12 fader panels worth) can be configured into an MPC4-D system. These remote/group faders are always available for instant access.

Cross Section Grouping Faders

In addition to their role as dedicated group faders, remote faders in the MPC4-D can be assigned across console sections. A system might be configured with 16 remote faders per console section, but any of these can be assigned to and control any channel or group of channels in any section of the entire console.

Console-Wide Bussing

The MPC4-D digital console architecture utilizes a console-wide bussing system. This means that literally any channel in any section can route any signal to any bus in the system. The MPC4-D provides up to 96 Main busses (6 sets of 16 stem mixing busses), 32 Reassign busses, and 32 Auxiliary Sends.

Sectional Auxiliary Busses

Console-wide bussing facilitates 32 Auxiliary sends on the MPC4-D system. These Aux Sends are completely configurable to a console section. For example, on a three operator console, there can be 8 sends per individual section (MDE) plus an additional set of free sends to be used console wide.

Multiple PEC/Direct Panels Per Section

On large and complex film consoles, very often there is the need for multiple PEC/Direct panels in a console section. The MPC4-D digital console allows up to 8 PEC/Direct (Bias/Tape) panels, controlling up to 56 virtual PEC/Direct keys, to be included in the system. Two or more PEC/Direct panels may be located in any console section. The layout and position of each panel is determined by the customer.

Sectional Automation

Multi-operator console systems demand an automation system like no other. The MPC4-D automation system is constructed such that while a single automation system controls the entire console, sections may function independently of the global automation scheme. Sections which function as a unit and can still be independent of one another is what separates the true multi-operator system from the daisy-chained console system in which consoles are simply placed next to each other rather than functioning as a cohesive unit. Sections may be configured with independent automation controls. Multiple mixes may be open at one time allowing multiple operators to work without affecting each other during critical automation passes.

Individual Automation Controls Per Function

Unlike any other console, the MPC4-D provides dedicated automation controls for every function on every fader and strip. This allows individual functions to be written to an automation pass without affecting other already-written elements. This ability is critical for mixing situations in which the most precise and specific elements must be able to be altered, at the same time leaving the rest of the mix elements intact.

Surface Frames To 30+ Feet

Whether a facility requires a small console or a very large console, the MPC4-D can be fitted to any sized application. Custom frame design allows virtually any size frame with wing-spans in excess of 30 feet. Console sections can be custom tailored; multiple master sections can be positioned anywhere to maximize ergonomic factors. A typical large-scale configuration might include 24-36 faders for music, 24-36 faders for dialog and a staggering 64-80 faders for effects with Remote Faders, PEC/Direct and other mastering tools fitted in multiple master sections along the console surface span.

Six Position Intercom System (Optional)

⌦ An advanced communications system is of paramount importance in a large-scale facility.
⌦ The MPC4-D is available with a six-position remote intercom system that allows intercom units to be located in the mixing stage, machine room, directors lounge, projector both or else-where as well as in the console surface.
⌦ Additional options allow for monitor dim in the mix stage and delayed indicators from all locations.

3.2.00 Expanded Function Control

Function Linking

Function linking across input channels is one of the many expanded features included as standard on the Harrison MPC4-D console. Any input channel controls or section of controls can be linked to any other channel or group of channels such that the controls on one channel are the master of the controls of the linked channels. This means that all of the elements of a particular stem will be subject to identical, simultaneous processing.

Expanded Layering Control

Popular Harrison technology has been translated to the MPC4-D with available individual layer access switches on every fader. The new MPC4-D channel strip can control up to four channel layers. A 24 fader console can control 96 channels of audio allow easy access to all 96 channels.

3.0 MPC4-D SYSTEM FEATURES

Sweet Spot Stem Mixing

Creative control is further enhanced with the creation of a Sweet Spot stem mixer feature on the MPC4-D. This feature allows a set of up to 8 channel strips to be configured as a Sweet Spot listening and control area. The area can be anywhere from one input strip wide (for controlling a single channel) up to eight input strips wide for controlling an entire mix stem from anywhere in the section. The operator can call up range of up to eight channels to a convenient location and control all parameters for those channels.

Multiple IKIS™ Graphic Interfaces

MPC4-D console sections are able to have their own graphic interface. The graphic interface is used for setting up user options, automation file handling, channel parameter graphics, router switcher control, monitor system setups as well as a host of basic functions. Additionally, a separate interface can be set up in a machine room or the like, where recordist personnel can have access to and control of everything on the console away from the mixing stage.

Expanded EQ

Dedicated 8-band EQ controls have been added providing unmatched control. Each band has full range control and 10 different shape selections including: notch, bell, graphic, HP/LP and find settings.

Expanded Dynamics

Dedicated Dynamics controls have been added to each strip allowing full control of all compressor and gate parameters instantly.

Custom Libraries

The MPC4-D allows the user to establish and save custom libraries for certain sections of the console including EQ, Pan Modes, dynamics settings, and more. Any saved library setting can be accessed on any channel at any time. A powerful filing system allows the operator to store these libraries to any available storage medium for later usage or transfer to other mixes.

Expanded Monitoring System

The Monitoring System on the Harrison MPC4-D has been expanded to include up to a 384 x 16 summing matrix. This will easily accommodate future monitor formats that will exceed the current eight wide standard. Each monitor source possesses level control and mute and can be assigned to a Remote Fader.

Expanded Router Control

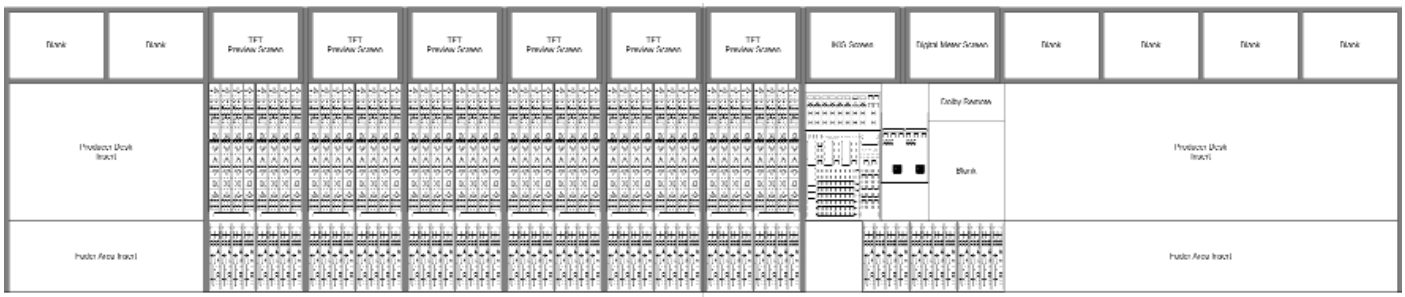
Included in the list of expansions on the MPC4-D is a greatly expanded digital router switcher system. Control for this system is based on the original MPC control methodology, but has been expanded dramatically to include all channel inputs and outputs and all insert point sends and returns. This new router, while offering more power, still allows very easy, familiar control of the entire electronic routing system.

Digital Bargraph Meters

Sophisticated, tri-colored LED bargraph meters are incorporated into the MPC4-D. These new meters can display values in full-scale digital, upper scale digital or VU. The zero reference indicator can be moved based on the meter scaling.

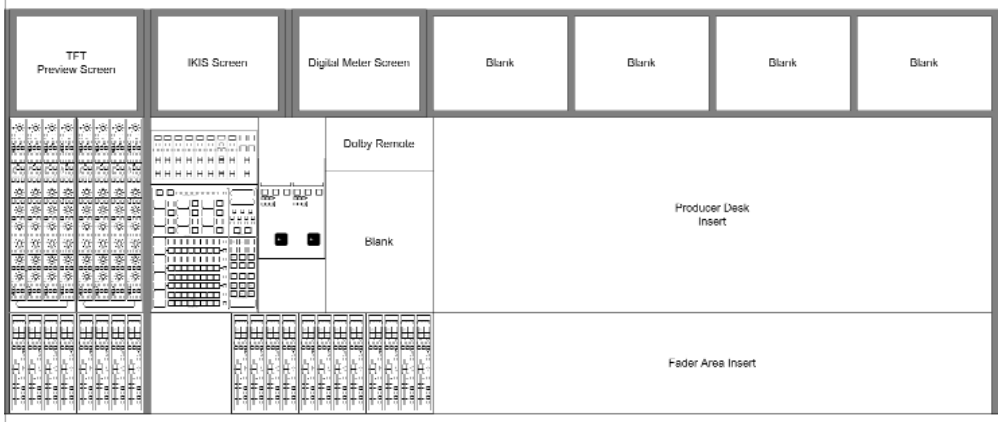
4.0.00 MPC4-D Sample Surface

Instead of being cluttered by a sea of buttons and switches, the control surface on the MPC4-D has been even more streamlined.



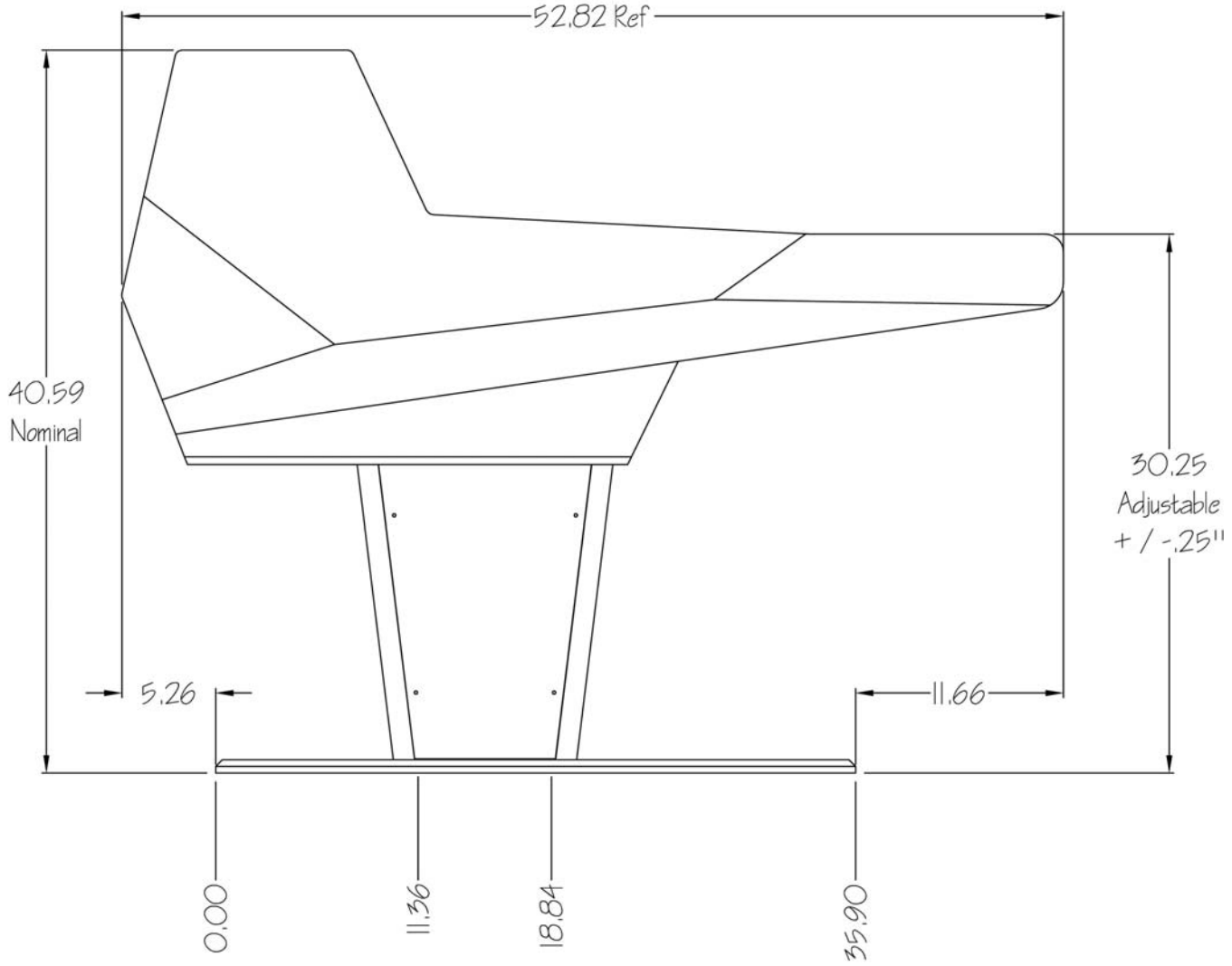
MPC4-D Console

Left side close up of MPC4-D Console



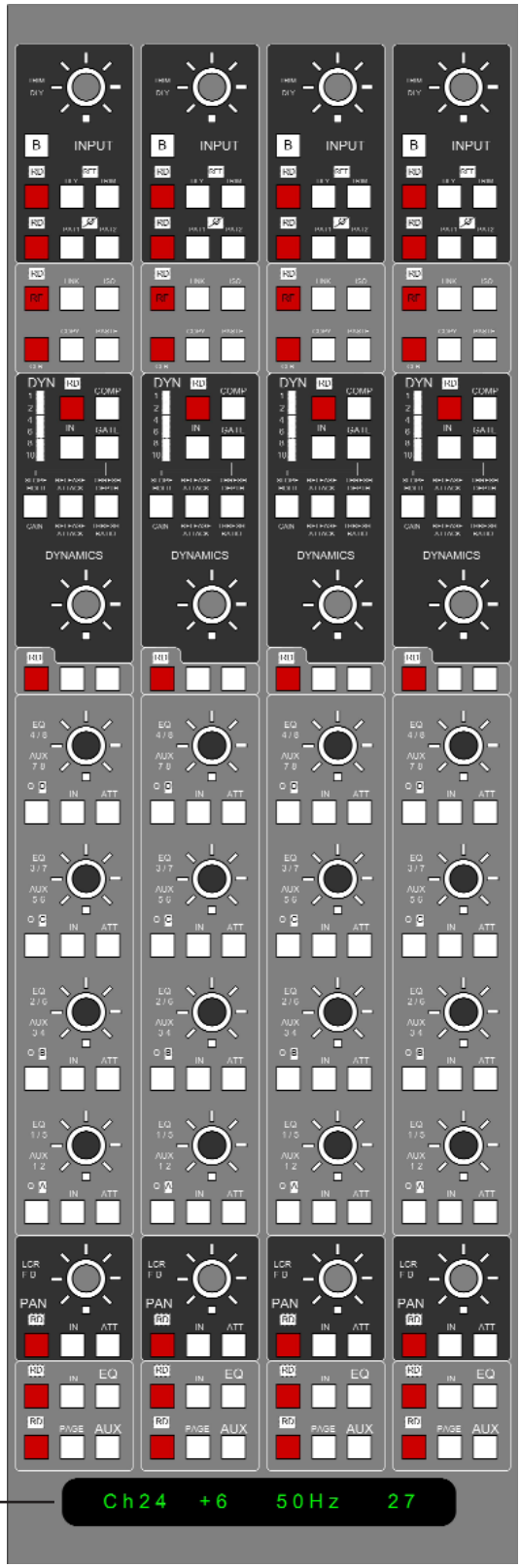
Ride side close up of MPC4-D Console

4.1.00 MPC4-D Profile with Measurments



Side Profile: MPC4D

4.2.00 Channels Panel



1 Input Controls
- B Input
- Delay
- Input Trim
- Insert Sends
- Phase Reverse
- RET Solo Isolate
- Automation Control

2 Channel Controls
- Link
- Link Isolate
- Copy/Paste
- Clear Channel Settings

3 Dynamics Section
- Dedicated Controls
- Compressor/Gate
- Side Chain EQ
- Threshold
- Ratio/Depth
- Release
- Attack
- Gain Makeup
- Hold
- In/Out Switch
- Gain
- Automation Controls

4 EQ and Aux Section
- Dedicated Controls
- 8-Band EQ per Strip
- 20-20k Each Band
- Notch Filter Select
- Search Filter Select
- HP/LP Select
- Shelving Curve Select
- In/Out per Band
- Graphic EQ Select
- 1-100 Q

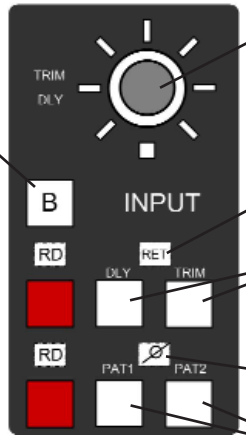
5 Panning Section
- Top Knob Controls LCR
- Bottom Knob Controls Divergence
- With a long hold, the ATT switch shifts the knobs to control Sub level and Front Back controls

6 EQ and Aux Automation Section

Trim/Delay, Pan/Dynamics, EQ and Aux Sends Display

1 Input Section

The MPC4-D's Input Section provides for intuitive control of any mono or stereo input channel.



Selects the **B** input

Automation **Write Enable** and **Read** LED for Input Section

Automation **Write Enable** and **Read** LED for Input Section

Top knob controls channel input **Trim** and bottom knob controls channel input **Delay**

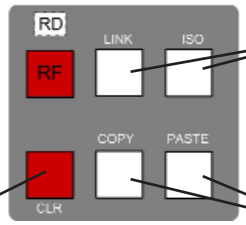
Indicates when a channel is a **RET**urn channel with solo isoate selected

Trim and **Delay** indicators are active when Trim is other than 0 and Delay is other than 0

Indicated when **Phase** reverse is active

Insert Point switches for two insert points

2 Channel Control Section



Automation **Write Enable** and **Read** LED for Fader Assignments

Channel **Clear** Switch. Hold for 2 seconds and all level parameters will be cleared to 0

Link Activate and **Isolate** switches. See "Linking Section" for details (page 19)

Copy and **Paste** switches. See "Copy/Paste Section" for details (page 19)

Displays **Trim** and **Delay parameters** when they are being controlled

Linking

"Link" switches are provided on all channel strips. These "Link" switches activate the global "Linking" function for the entire console or console section. By selecting any "Link" switch on any strip is the same as going to the center section and selecting the main "Link" switch. These "Link" controls are provided on each strip so it is not necessary to go to the center section to activate "Linking"

Step 1 - Select "Link" on and strip. The Link switch will flash indicating Link mode is active.

Step 2 - Select the function that are to be linked by pressing the appropriate ATT switch. EQ ATT if you wish to Link only EQs, Pan ATT if you wish to link only Pan's etc. If you wish to Link the entire channel, select the large green ATT switch on the fader for the strip and this will select the entire channel for linking.

Step 3 - Select which other strips you want to link with by selecting the appropriate ATT switches for the functions that are to be linked. EQ, Pan, entire channel etc.

Step 4 - Once you have selected the things that are to be linked, disable the flashing "Link" switch and the Link will be complete.

Isolate

Isolate is provided on each strip to allow an offset to be set on linked parameters. To set an offset simply select the ISO switch on the desired channel (this will temporarily disconnect the strip from the link) and put a new parameter on the desired function (for example an EQ! Band level might need to be less relative to the link). Once the offset parameter is set, disable the ISO switch and the link will be reestablished with the offset.

Copy/Paste

"Copy and Paste" switches are provided on all channel strips. These switches activate the global "Copy Paste" function for the entire console or console section. By selecting any "Copy" switch on any strip is the same as going to the center section and selecting the main "Copy" switch. These "Copy Paste" controls are provided on each strip so it is not necessary to go to the center section to activate "Copy Paste".

Step 1 - Select Copy on any strip, the Copy switch will flash indicating Copy Paste is active.

Step 2 - Select the things that are to be copied by selecting the appropriate ATT switches. For example if you want to copy EQ the select Copy, select the ATT switch for the EQ.

Step 3 - Once the desired function/s are selected, choose the channel strips you wish to copy the information to. This is done by selecting the large green ATT switch on the desired faders.

One press of the switch will select that channel. A double click on any of the large green ATT switches will select ALL channel for Paste (you will see all large green ATT switches light up).

If you "Hold" the large green ATT switch it will step through the channel strips one by one and you will see the green ATT switches light up as it steps. This allows any combination of channels to be selected for paste.

Step 4 - Once the desired channel strips are selected for "Paste" you can press any "Paste" switch to finish the "Copy and Paste" for those parameters.

3 Dynamics Section

Automation **Write Enabel** and **Read** LED

Selects the **Compressor** for control with the knobs

Gain Reduction Meter

Selects the **Gate** for control with the knobs

In switch for the Dynamics section, either Compressor or Gate when either is selected

Select switches for the dual knobs in the Dynamics section. **Gate parameters** are indicated above the three switches and the **Compressor parameters** are indicated below the three switches.

Knob control for **Dynamics**

Displays **Pan** and **Dynamics parameters** when they are being controlled

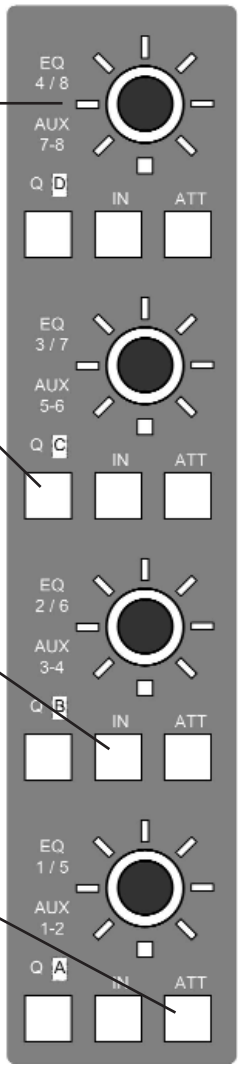
❹ and ❻ EQ and Auxilliary Section

Top knob controls **Level** and Bottom knob controls **Frequency** for each of the 8 bands

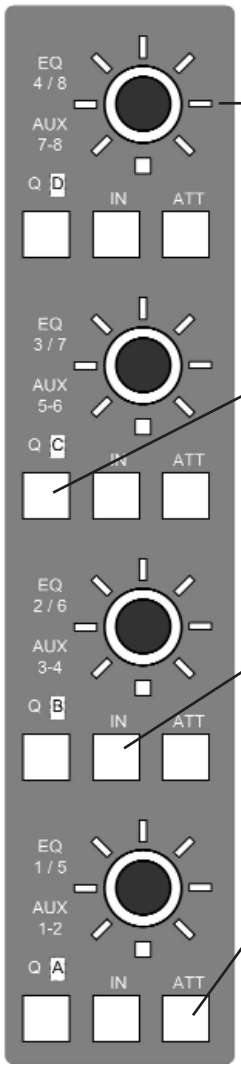
Q switch toggle top knob to be the **Q** control for each of the 8 bands

In button for the individual band

ATTention switch:
- Double Click clears the band
- Used to select the band of EQ for Copy/Paste
- Medium Long Hold toggles to Shape selection on top knob
- Long Hold toggles all EQs across console to the opposite mode



EQ/Aux Panel showing EQ Callouts



EQ/Aux Panel showing Aux Callouts

Top knob controls the **Odd Aux Send** level and Bottom knob controls the **Even Send** level

In Button for the **Odd Aux Send** of each pair

In button for the **Even Aux Send** of each pair

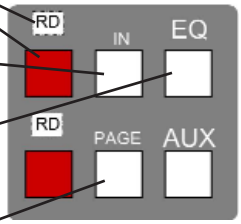
ATTention switch:
- Double Click clears the Aux pair to 0db
- Used to select the band of Aux pair for Copy/Paste
- Long Hold toggles all Aux Sends across console to be active on the strip

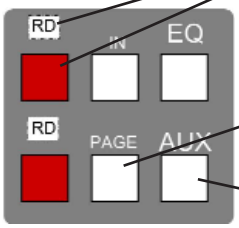
Automation **Write Enable** and **Read** LED for the EQ

Insert the entire EQ for the channel

Selects EQ 1-4 to the EQ controls above

Selects EQ 5-8 to the EQ controls above





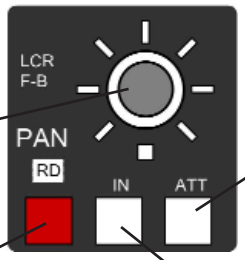
Automation **Write Enable** and **Read** LED for the selected Aux pair

Selects Aux Sends 9-16 to the Aux Send controls above

Selects Aux Sends 1-8 to the Aux controls above

Displays **Aux Send Parameters** for the Aux pair being controlled

5 Panning Section



Top knob is **LCR** and the bottom knob is **FB**

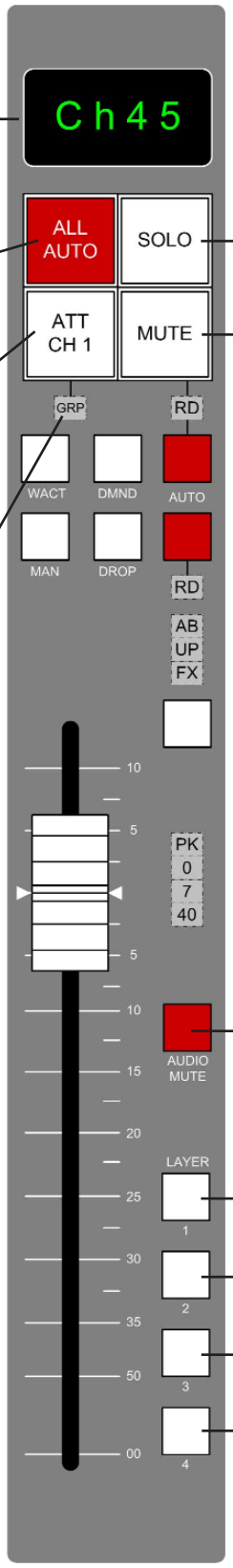
ATT for Pan toggles to **Divergence** on top knob and **LFE** on bottom knob. Also used to **Copy/Paste** Pan parameters

Automation **Write Enable** and **Read** LED for the Pan section

In switch for Panning

4.3.00 Fader Panel

The next three pages contains descriptions of all the buttons located on the fader panel.



1 **Channel Display** can either show channel number, router source or user defined name

2 Channel **All Auto** switch activtes all Write enables for the channel strip

3 Main Channel **ATT**ention switch:
- Selects channel to center section
- Used to select Remote Fader assignments
- Double Click places the fader at 0dB
- Used to select channels for Copy/Paste and Linking

4 **GRP** LED is active when the strip is attached to one or more Remote Faders

5 Channel **Solo** and **Mute** switches

6 Non-Automated audio **Mute** switch

7 **Layer** access switches
- Used to access channels on Layers 1-4
- Singlepress changes Layers on the individual strip
- Long Hold changes Layers on the entire console or console section
- Also used to select channel mapping while in "Profile Mode". See Profile Mode Section" for details

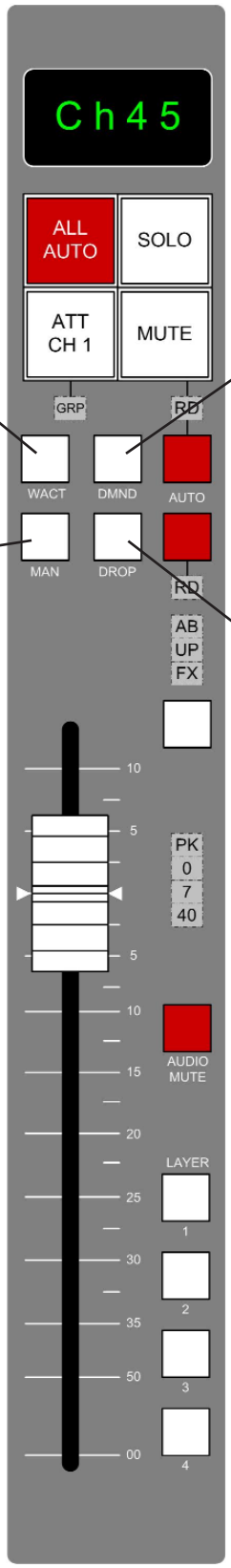
8

WACT selects touch write on the individual fader.

- When the fader is touched, write enable is activated
- When the fader is released, the write enable remains active

9

MANual when selected places the strip in Manual (non-write) mode. This allows changes to be prepared for automation without writing them.



10

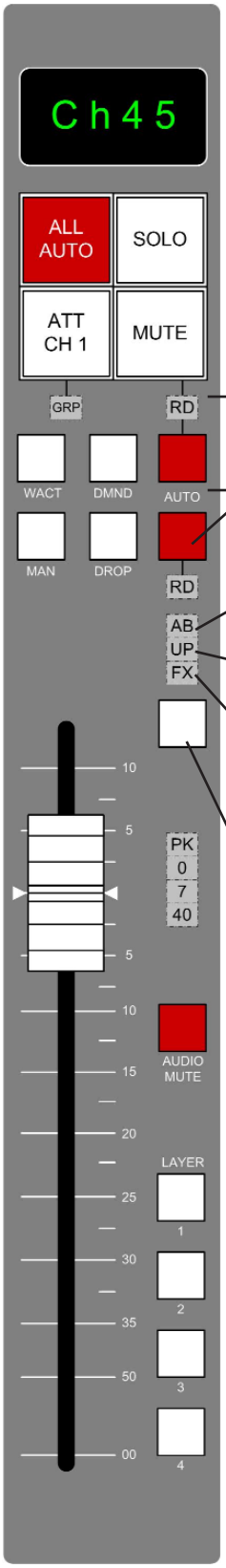
DMND selects touch write on the individual fader.

- When the fader is touched, write enable is activated
- When the fader is released, the write enable is disabled
- When released the fader can instantly go to Read or it can Ramp to Read

11

DROP activates the Ramping from Write to Read.

- Single press activates Drop and the fader will move back to read at the selected ramp rate
- Selecting Drop while touching the fader allows the fader to be moved back to the read position and write will Drop out when the read position is reached



12

Automation Write Enable and Read LED for the Mute

13

Automation Write Enable and Read LED for the Fader

14

AB (Absolute Mode when selected allows the fader to write an absolute value to the automation

15

UP (Update or Trim) Mode when selected allows the fader to write a relative value to the automation based on a previously written value

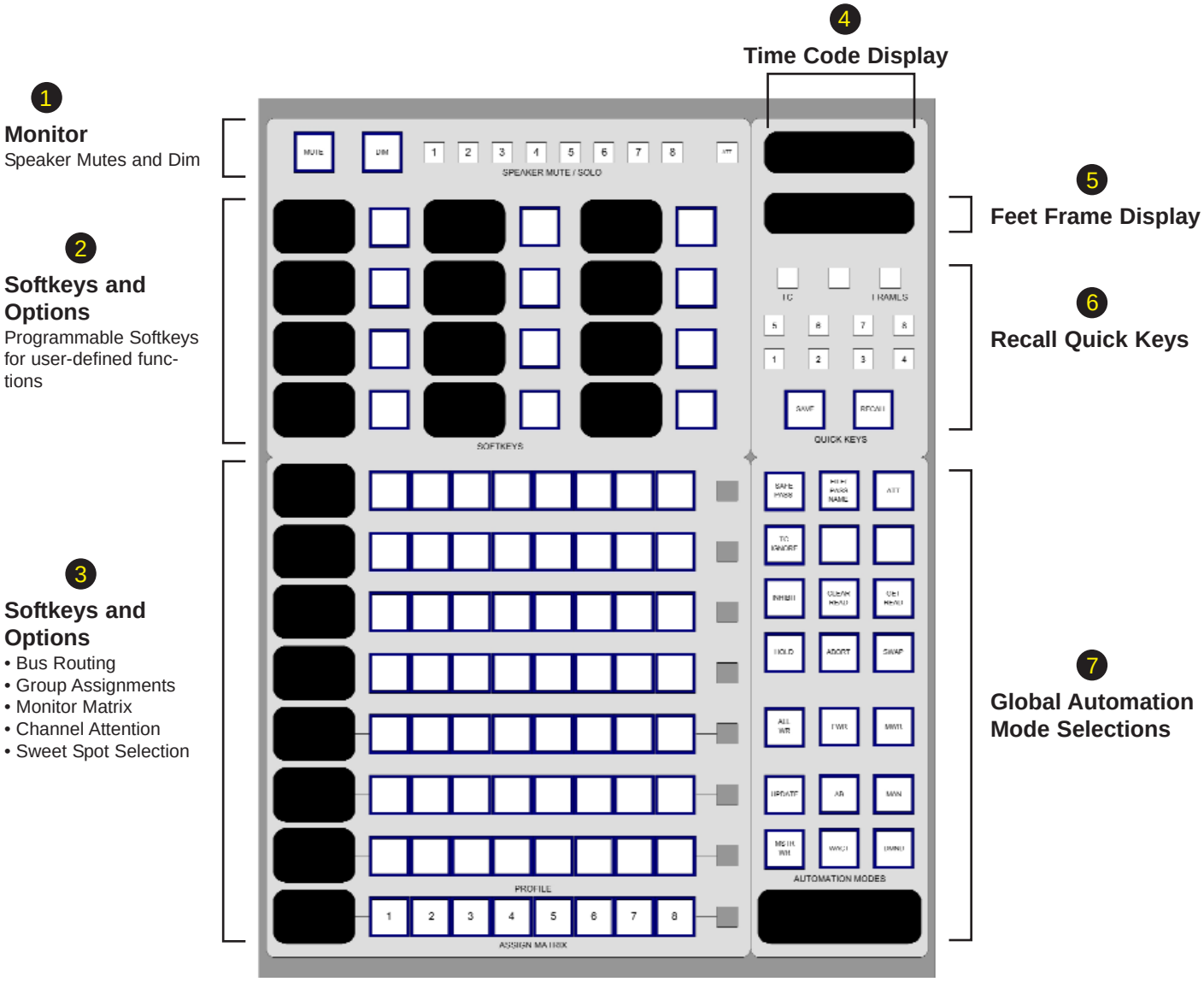
16

FX (Fixed Trim) Mode when selected allows the Update or Trim mode to function while “Fixing” the fader position. FX mode is selected by touching the fader and selecting the switch at the same time. The fader will stop moving and the FX LED will come on

17

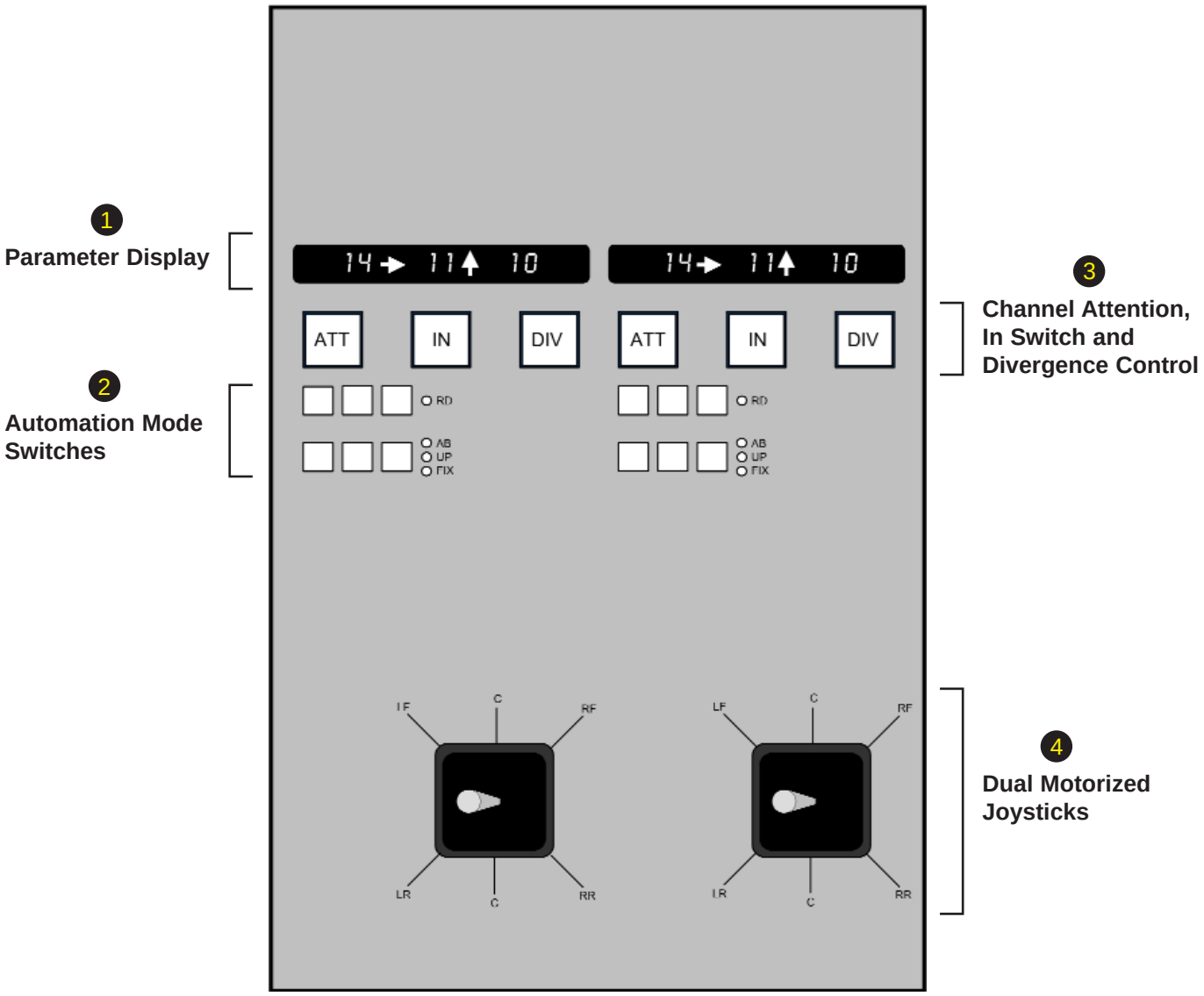
Automation Write Enable and Read LED for the Fader

4.4.00 Routing Matrix/Automation/Monitor Panel



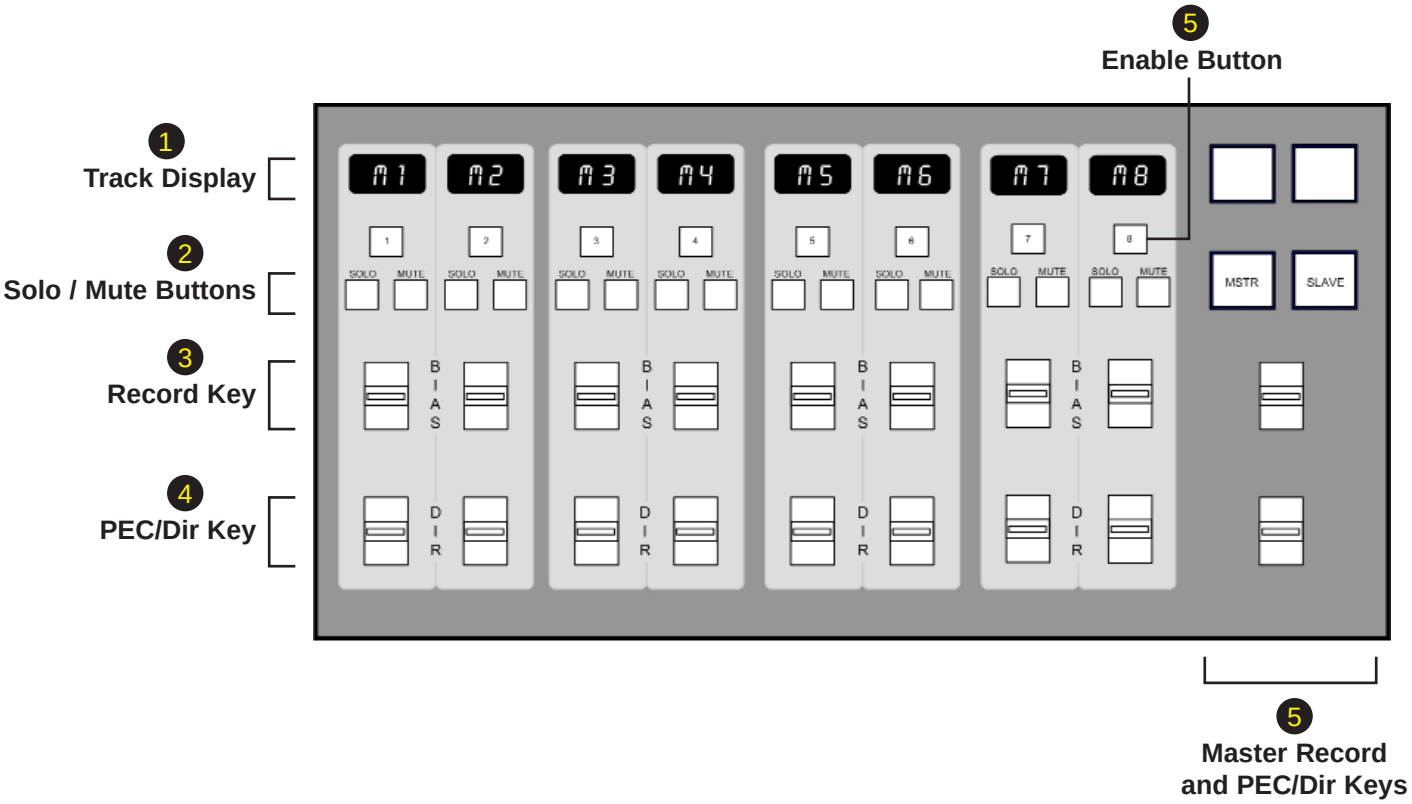
4.5.00 Motorized Joystick Panel

Available in both single and dual joystick configurations. Dual Joystick configuration shown below.

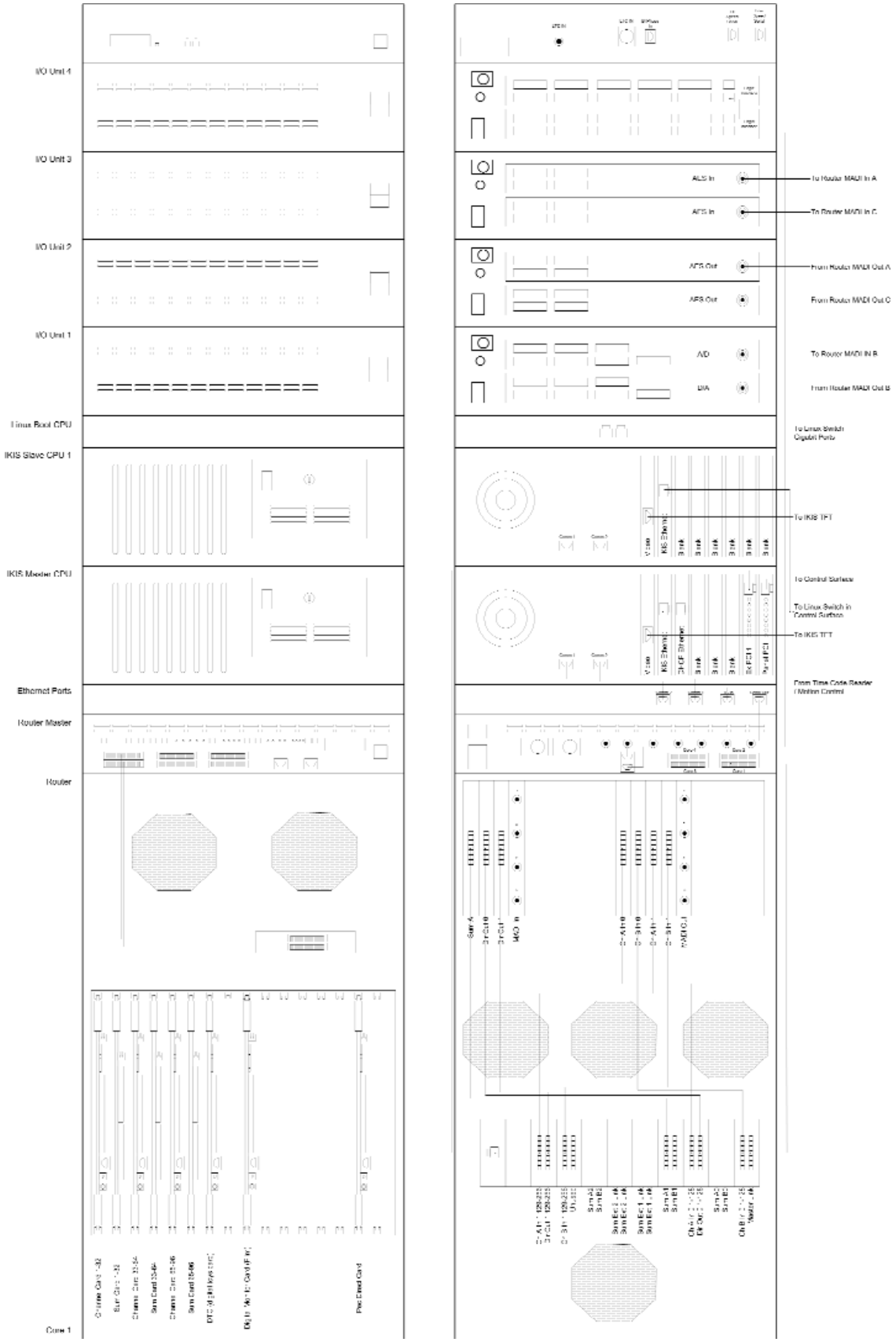


4.6.00 Routing Matrix/Automation/Monitor Panel

Fifty-six virtual keys can be controlled by any PEC/Dir panel with up to 8 PEC/Dir panels in the surface configuration.



5.0 RACK LAYOUT

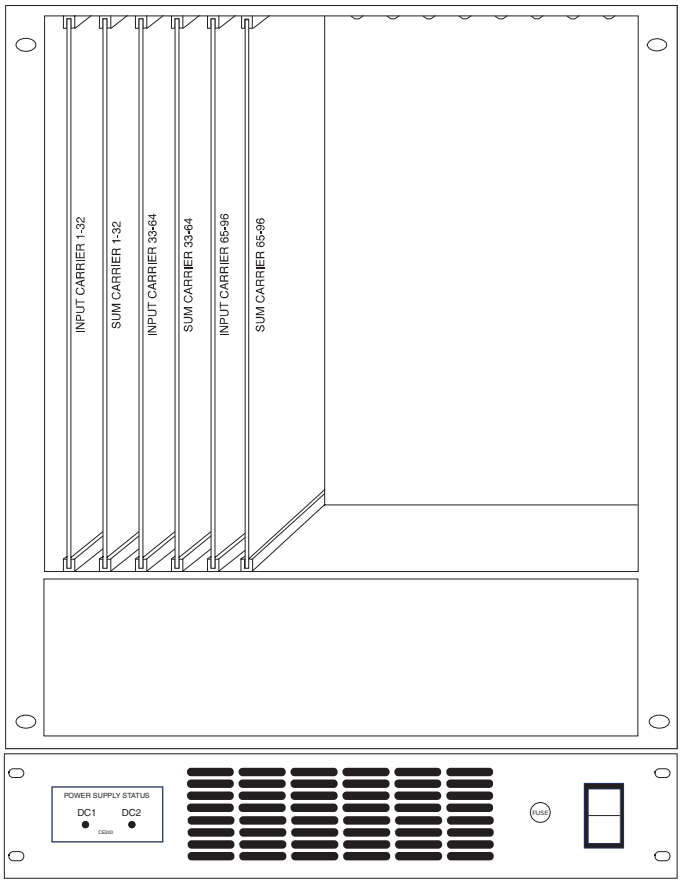


FRONT OF TYPICAL RACK REAR OF TYPICAL RACK

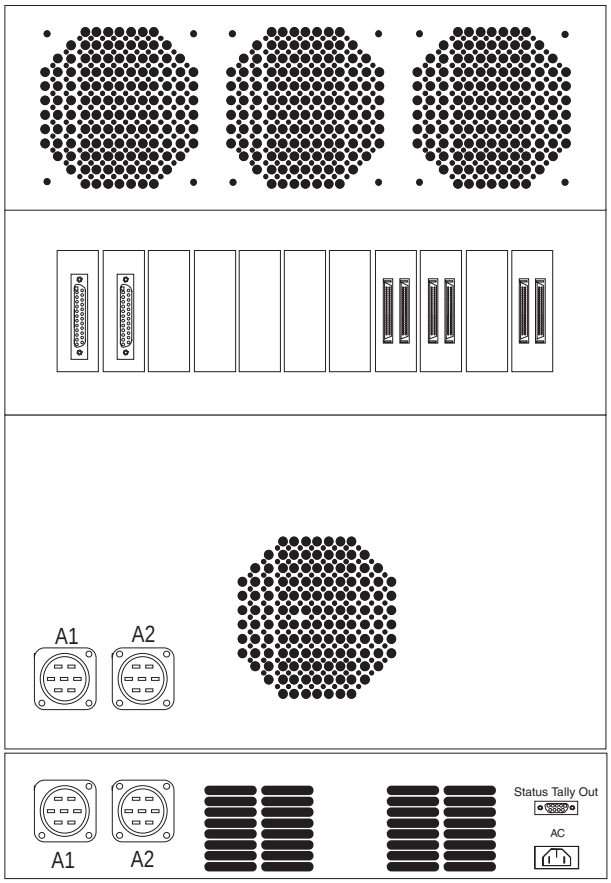
6.0.00 digital.engine™ Core

The primary processing component of the digital.engine™, the DSP Core can process up to 256 audio channels. Larger systems requiring more processing can be expanded by adding up to two additional Core cages. Additional Cores support up to 256 full channels of processing each. The initial core cage includes processing for 96 busses (up to 152 optional) and digital PEC/Direct stem monitoring processing.

Front View



Rear View



Channel Cards

Audio processing in the Core cage takes place on channel cards that slide into the front of the Core cage. A single DSP Core holds eight channel cards; each Channel card is paired with a Sum card seated in the adjacent slot. Each Channel/Sum card pair processes 32 channels of audio information. SHARC based technology allows 40-bit processing with full processing available on each channel.

Router Interface

Links from the Router supply digitized, routed audio information to the processing Core. The number and placement of the Link cards in the Router varies according to system size.

Power

Power to each DSP Core is supplied by a 2RU external power supply.

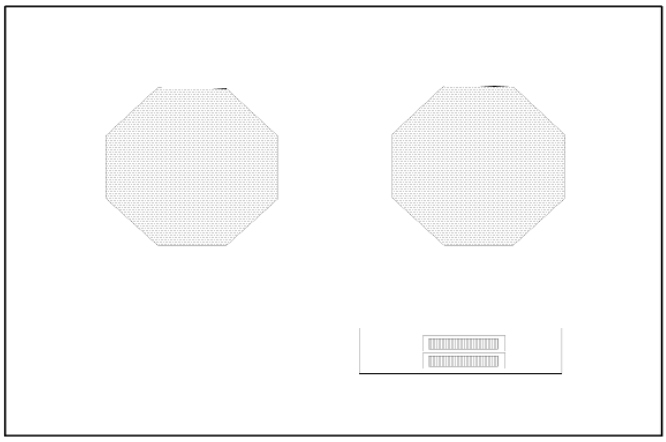
Size

Each DSP Core occupies 12 rack units (12RU)
An empty core weighs 105 lbs. (47.7 kg)
Each 2RU PSU weighs 25 lbs. (11.4 kg)
Channel cards weigh 2.25 lbs. (1 kg)
Sum cards weigh 3.19 lbs. (1.43 kg) each

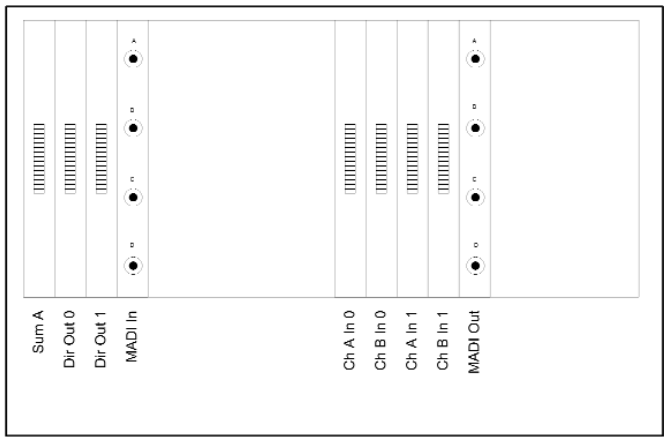
6.1.00 MADI Router

The digital.engine™ Router is the processing portal to the DSP Core. The MADI IN and OUT cards conduct the MADI data stream to and from the MADI signal source, typically the Hi-Density I/O audio signal converter cage.

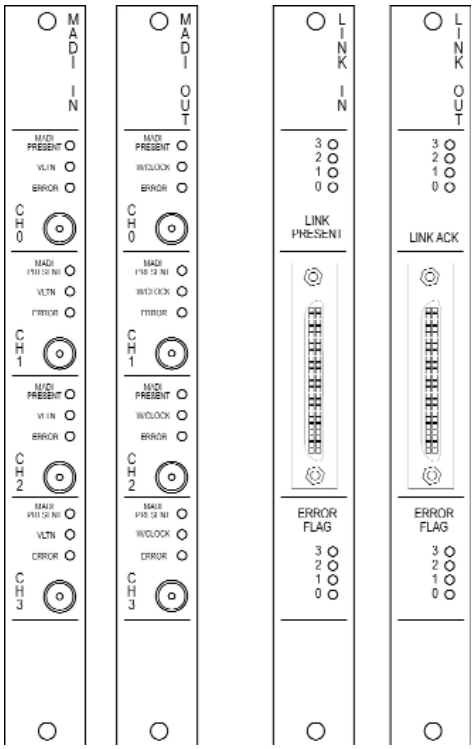
The size and configuration of the Router system is determined by both the number of Input channels and well as the number of signal sources and destinations. MADI information is supplied via 75 Ohm coaxial cable with BNC type connectors. Each MADI Router Interface card is capable of handling 224 MADI signals with 4 each MADI IN and MADI OUT cards allowed per Router cage. A maximized digital.engine™ system can support up to three Router cages.



FRONT



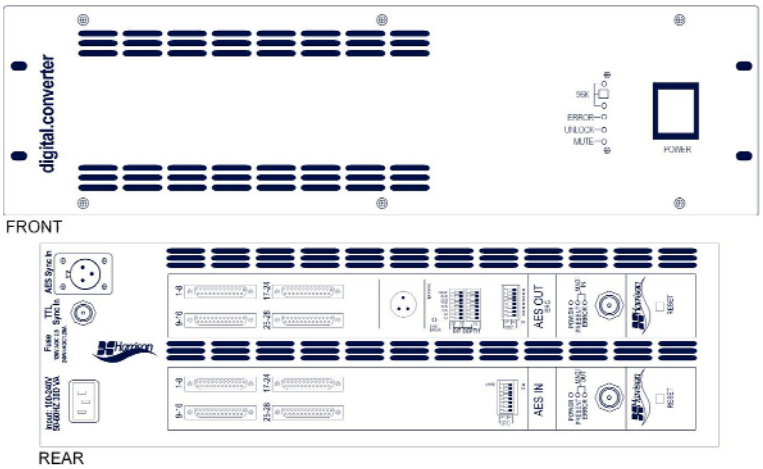
REAR



Link Cards
Link cards connect the routed signal to the DSP Core. The number and type of link cards is determined by the number of Input channels.

Power
Power to the Router cages is via an external 2RU power supply. The Router and the Router Master share a common Power Supply Unit.

Size
Each Router cage occupies 7 rack units (7RU)
An empty Router cage weighs 36 lbs. (11.4 kg)
The 2RU PSU weighs 25 lbs. (11.4 kg)
Link cards weigh .56 lbs. (.25 kg) each
MADI cards weigh 1 lb. (.45 kg) each



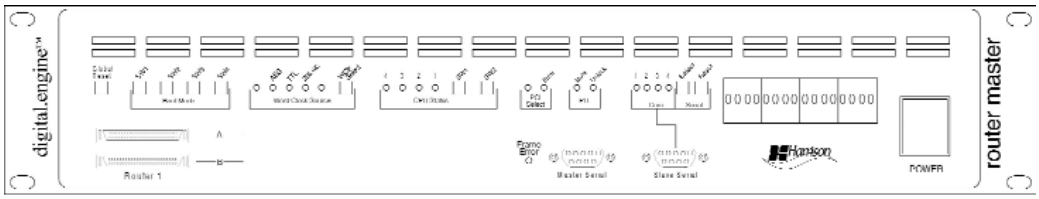
FRONT
REAR

6.2.00 Rack Mount I/O Units

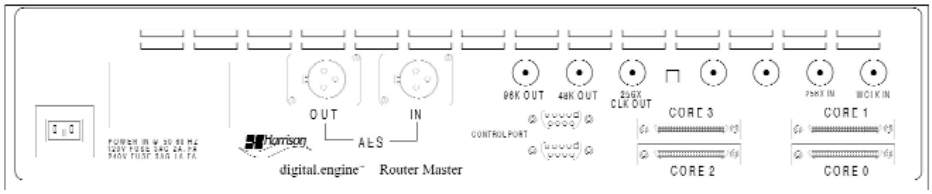
The Rack Mount I/O (Input/Output) units are the doorway into and out of the Router. Each unit supports 2 signal converter cards; each card supports 56 signals (56 analog balanced signals or 28 AES pairs) for a total of 112 possible signals per unit. AES/EBU (receive or transmit) cards support 28 stereo pairs. AES cards are outfitted with dip switches for sample rate conversion bypass. Analog (A/D or D/A) cards support 56 balanced signals. The source signal is converted to a MADI data stream format and is sent to the Router switcher via BNC connectors over 75 Ohm coaxial cable.

6.3.00 Router Master

The digital.engine™ system receives its synchronization signal from an external synchronization source. The Router Master provides the following reference outputs for connecting external equipment to the system.



FRONT



REAR

- AES/EBU Interface
- TTL Interface
- 256 Xfs
- 48K
- 96K

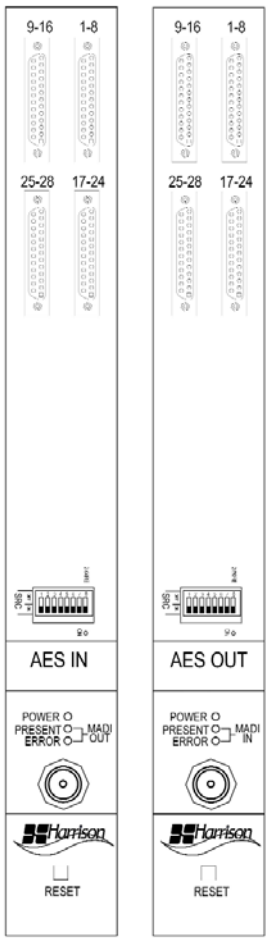
The digital.engine™ system will slave to AES/EBU or TTL external references.

Serial Data
The two 9-pin D connectors receive and send serial communication data from the computer to the console surface.

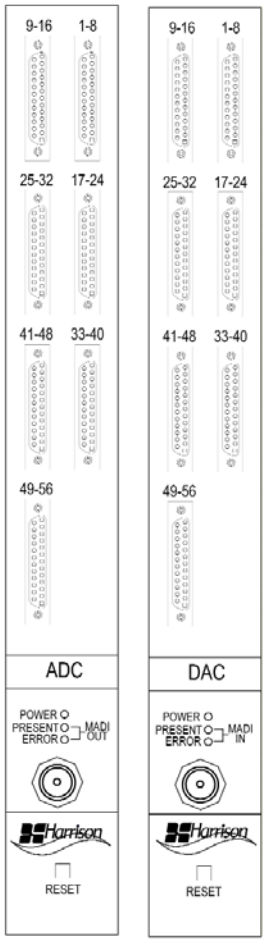
Router and Core Interface
Three pairs of SCSI-II type connectors on the front can connect up to three Router units. The four SCSI connectors on the rear of the unit supply system data to up to four DSP cores. All SCSI-II type connectors are supplied by Harrison.

Power
The Router Master shares a common 2RU external Power supply with the digital Router.

Size
The Router Master Unit occupies 2 rack units (2RU)
Each unit weighs 23.6 lbs. (10.6 kg)



AES/EBU



Analog

6.4.00 AES/EBU and Analog Converter Cards

AES/EBU
Fifty-six AES input or output signals (28 pair) are provided via 25-pin D connectors. Sample Rate Converter Bypass (Inputs only)

Status and Error LED's present on each card
One MADI connector (BNC type)
Reset switch located on each card
AES Cards weigh 3 lbs. (1.35 kg) each

Analog Converter Cards
Fifty-six analog input or output signals (28 pair) are provided via 25-pin D connectors.

Status and Error LED's present on each card
One MADI connector (BNC type)
Reset switch located on each card
A/D Cards weigh 4 lbs. (1.80 kg) each
D/A Cards weigh 4.25 lbs. (1.9 kg) each

7.0.00 IKIS™ Automation Platform

The powerful and flexible automation system is one of the hallmarks of Harrison consoles with the MPC4-D as the latest heir to this legacy. Every function on the MPC4-D console can be automated in dynamic (real-time) automation: Faders, Mutes, EQ, Panning, Dynamics, Auxiliary Sends, Input controls and routing are all candidates for automation on the MPC4-D console. Additionally, the MPC4-D console static recall function supports the Router, the monitoring system and customizable system Options.

7.1.00 IKIS™ Touch Automation

No matter how powerful an automation system, the purpose is defeated if the controls are confusing and difficult to use or read. The MPC4-D uses motorized faders augmented by the Harrison's proprietary motorized pot technology. All motorized pots and faders are touch-sensitive and provide instant write access to automation.

7.2.00 IKIS™ File Architecture

Automation mix files can contain an unlimited number of passes. Any pass may be made "safe" and kept available for fast access. The Write pass functions as the buffer for writing new automation data. Replay data to the console is fed from the Read pass. If automation data is written to the console while a Read pass is being played, the new information is incorporated with the read data to create a new mix pass. Harrison's powerful automation architecture has been well-tested and proven in many world-class post production facilities worldwide.

As outlined previously, every function of the MPC4-D control surface has dedicated automation controls. Controls possess individual WR (write enable) switches that allow any control to be activated either manually or on a specified frame. Read (RD) indicators tell when the console is in playback mode. Touch sensitive faders allow for extremely fast touch-write and ramp-to-read actions. Global mode selections are available in addition to user-defined local mode switches. The operator's working parameters preferences can be set up on the local switches for immediate access.

For a detailed description on how to use the IKIS™ Automation Platform, please refer to the IKIS™ Installation Manual that was provided with your console.

8.0 GENERAL SPECIFICATIONS

8.0.00 Core

Maximum Channels	Up to 768 channels per core
Configuration	256 channels per cage, 32 channels per channel/sum card pair; 8 pairs per cage. PEC/Direct card allows 56 channels of switching, full processing on all channels
Busses	180 consolewide (96 Main, 32 Aux and 32 Mix/Reassign, 16 Monitor, 4 Listen buses) on full bus configuration
DSP	Analog Devices 21062 SHARC
Channel Functions	Compressor with Side Chain Insert, Limiter, Expander, Gate, Input Select, Flexible 8 -band EQ w / notch, bell, HP and LP Filter, Channel Delay, 32 Aux Sends, Up to 16-wide Panning, Programmable Insert Point, Main Fader
Internal Processing	40-bit, floating point processing and interconnect
Sample Rate	Up to 108kHz
Vari-Speed Sample Rates	+/- 12.5% (38.5kHz to 54kHz, 77.2kHz to 108kHz)
Audio Distribution	MADI
Size	12RU per core (21”)
Power Supply	Internal supply; optional external / redundant PSA available
Cables	SCSI Type II link cables among cores, to and from router
Weights	Full cage: 127 lbs. (57.8kg) Maximum

8.0.01 Router

Input / Output	Up to 2240 Inputs x 2240 Outputs
Configuration	Up to 10 Input slots and 10 Output slots for MADI port cards or link cards. MADI cards have 4 MADI ports per card. 56 signals per MADI port. Also supports master serial digital meter feed to control surface
Signal Type	MADI and digital link signals
PSU	Internal, fused PSU; optional external / redundant PSU
Cables	75 Ohm coax w / BNC connector SCSI Type II (mini 50-pin) link cables; MADI via copper or optional fiber optic
Weights	Empty cage: 41 lbs (18.6kg)
Cards	Link In/Out: .56 lbs (.25kg) MADI In/Out: 1 lb (.45kg); Meter master: .56 lbs (.25kg)
Size	7RU per router cage (12.25”)

8.0.02 System I/O

Configuration	**Two I/O carriers per 3RU I/O unit; card types may be combined**
Location	**May be located remotely from router and core**
Signal Type	**A/D, D/A, AES/EBU In and Out**
Digital I/O	**Up to 56 signals per carrier**
Analog I/O	**Up to 56 signals per carrier**
Resolution	**24-bit (48k or 96k)**
Sync	**External AES/EBU, and TTL connector**
Distribution	**MADI via copper or optional fiber optic**
AES Inputs	**SRC THD+N -117dBFS Bypassable SRC Dynamic Range 128dB Sample Rate Range 38kHz to 108kHz Word Width 24-bit I/O**
AES Outputs	**16 to 24-bit O/P with selectable word widths and dither; bypassable SRC in groups of 8**
Operating	**A/D and D/A factory preset at +4dBu = 0VU (+24 Clip) Levels: Optional operating levels available**
THD	**DAC less than .0020%; ADC less than .0015%**
Latency	**Analog I/P > Channel > Bus > Analog O/P =2.35 milliseconds @48KHz AES3 I/P > Channel > Bus > AES3 O/P = 900 microseconds @48KHz AES3 I/P > SRC > Channel > Bus > AES3 O/P = 2.7 milliseconds @48KHz**
Size	**3RU (5.25”) rack mount unit**
Weights	**Full cage: 46 lbs (20.9kg) maximum**
Power	**Internal, fused PSU per unit; optional external / redundant PSU**

Note: Harrison recommends that the signal input to our AES receivers have a minimum peak-to-peak voltage of 1 volt (1 Vp-p measured across the differential pair).

9.0 HARRISON CONTACT INFORMATION

Harrison's knowledgeable sales staff is ready to help you with all of your pro audio needs. For more information about the MPC4-D Digital Film Console or any other Harrison product, please contact us at (615) 641-7200, or e-mail us at sales@harrisonconsoles.com. For a list of domestic and international distributors, please visit our web site at: www.harrisonconsoles.com.com.

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