

FEST

FEST F16

Digital Mixer

User Manual

Fest Audio Ltd

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Important Safety Information

CAUTION: These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the User Manual unless you are qualified to do so. Refer all servicing to qualified service personnel.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water. Do not expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on
6. this apparatus.
7. Clean only with a dry cloth.
8. Do not block any of the ventilation openings. Install in accordance with the manufacturer's instructions.
9. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.
10. Only use attachments/accessories specified by the manufacturer.
11. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as the power-supply cord or plug is damaged, the liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
12. To completely disconnect mains power from this apparatus, the power supply cord must be unplugged.

For US and CANADA only:

Do not defeat the safety purpose of the grounding-type plug. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of an insulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

General Precautions

1. Do not place heavy objects on the control surface, expose it to sharp objects or handle the console in any way that may cause damage, e.g., rough handling and/or excessive vibration.
2. Do not subject the equipment to dirt, dust, heat or vibration during operation or storage. Never expose the console to rain or moisture in any form. Should the console become wet, turn it off and disconnect it from the mains without further delay. The console should be given sufficient time to dry out before recommencing operation.
3. When cleaning the console, never use chemicals, abrasive substances or solvents.
4. The console control panel should be cleaned using a soft brush and a dry lint-free cloth. For persistent marks, use a soft cloth and isopropyl alcohol. Switches and potentiometers do NOT require cleaning or lubrication.
5. Keep these instructions for future reference. Follow all warnings in this manual and those printed on the console.
6. The console must be connected following the guidance in this manual. Never connect power amplifier outputs directly to the console. Connectors and plugs must never be used for any other purpose than that for which they are intended.
7. The console mains input must always be connected to correctly rated mains power as referred to in this manual.
8. The mains input must, at all times, be connected to the local mains power supply using the supplied power cord.
9. In cases where the supplied plug does not fit, a qualified electrician must be consulted.
10. The power cord must be routed in such a way that the risks of accidentally stepping on it, stretching it or it being pinched are minimized.
11. **WARNING! THIS EQUIPMENT MUST BE EARTHED!**
12. Ventilation slots must never be covered or obstructed in any way, otherwise, airflow required for safe operation may be restricted. Where the console is to be operated in its flight-case, then this must be located in such a way that it allows for proper ventilation.
13. Refer servicing to qualified technical personnel only

Conformities

Declaration of Conformity

The Directives covered by this declaration: Electromagnetic directive 2014/30/EU

The Products Covered by this Declaration: FEST F16 audio mixing consoles

The Basis on which Conformity is being Declared: The products identified above comply with the requirements of the above EU Directive(s) by meeting the following standards:

BS EN 55103-1:2009 Product family standard for audio, video, audiovisual and entertainment lighting control apparatus for professional use.
Part 1 – Emission.

BS EN 55103-2:2009 Product family standard for: audio, video, audiovisual and entertainment lighting control apparatus for professional use.
Part 2 – Immunity.

BS EN 61000-3 -2:2008 Electromagnetic Compatibility (EMC) Part 3. Limits. Section 2. Limits for harmonic current emissions (equipment input current ≤ 16 A per phase).

BS EN 61000-3 -3:2006 + A2:2009 Electromagnetic Compatibility (EMC) Part 3. Limits. Section 3. Limitation of voltage fluctuations and flicker in low voltage supply systems for equipment with rated current ≤ 16 A.

BS EN 60065:2002 + A1:2006 Audio, Video and similar electronic apparatus. Safety requirements.

BS EN 61000-4-2:2009 Electrostatic discharge immunity test.

BS EN 61000-4-6:2009 Immunity to conducted disturbances.

BS EN 61000-4-11:2004 Immunity to voltage dips, short interruptions and voltage variations.

Attention!

The attention of the specifier, purchaser, installer, or user is drawn to special measures and limitations to use which must be observed when these products are taken into service to maintain compliance with the above directives. Details of these special measures and limitations to use are available on request, and are also contained in this User Manual

1. Introduction:

F16 is a unique and innovative multi-functional digital mixing console, with many advantages such as small size, lightweight, full-featured, intuitive and simple operation, friendly human interface, and a premium touch sensor.

The flagship hardware configuration, using the 4th generation industrial floating-point SHARC processor, 24bits/192kHzAD/DA, a powerful performance to ensure the quality of the audio restore.

The custom layer, channel link and mute group, making it an ideal for live performances, conferences, schools, churches, cultural auditoriums, weddings, concerts, homes, bands, multi-purpose halls and other sound reinforcement systems.

Key Feature:

- 10.1" 1280X800 pixel HD IPS touchscreen
- 16 microphone inputs with 12x XLR and 4x Combo XLR/Jack
- 16x high-performance analogue preamplifier
- 8x assignable balanced outputs
- 16 segment high-precision main output level meter
- 9x high-quality 100mm motorised fader.
- User-defined custom layer
- Custom mute group
- Channel link (Horizontal e.g. CH1 + CH2 or Vertical e.g. CH1 + CH9)
- 2 Channel Recording/Playback to/from USB stick
- 2 Channel Recording/Playback to/from PC with the optional USB or Dante card
- Scene memories - unlimited scenes
- 4x mono AUX buses, 4x stereo GROUP buses, 1x stereo L/R and 1x stereo monitor bus
- 2x Front USB support for playback, recording, system updates, WiFi toggle, scene import and export
- 1x expansion slot for optional USB, Dante and AES/EBU card
- 1x RS232/485/Support Central Control System Access
- 8x effects, 2 modulations, 2 delays and 2 reverbs, 2x 31-band graphic equalizers
- Support IPAD remote control
- Support MP3, WAV, FLAC, APE and other formats of audio source playback

2. Front Panel View



3. Analogue Gain



As these are analogue gain, the gain setting will remain unchanged regardless of the scene change.

Minimum: 0 dB
Maximum: 60 dB

4. Front USB Port



This two USB at the front panel allows the user to insert a USB stick for:

- Import/Export scene
- Playback directly from USB
 - Support MP3, WAV, FLAC, APE file format
- Recording directly to USB
 - Recorded in WAV file format.
- Wi-Fi toggle to establish a Wi-Fi connection for the Tablet Remote Control.
- 2x USB 2.0 port

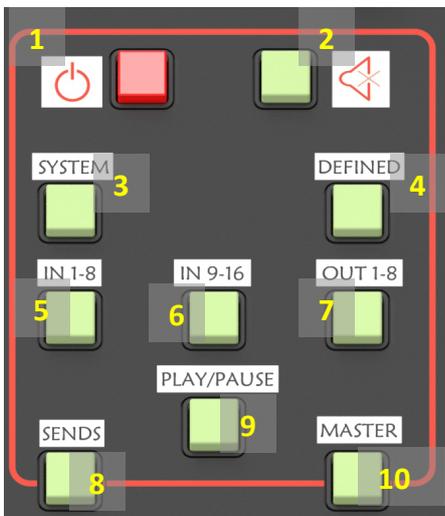
5. Headphone



For the connection to the headphone and headphone volume encoder.

Output connector: TRS Jack
Output Impedance: 100 Ω Max.
Output level: +22 dBu

6. Menu Buttons



6.1 Power On/Off button

Press and hold for five seconds to turn the system on or off

6.2 Mute button

Press to active the mute function

6.3 System Setup button

Press to enter the setup page for System, Channel, Patch, EQ, FX, GEQ and lot more.

6.4 User Define Layer button

When User Layer was defined, pressing this button will display the defined layer on the screen. Nothing happens if no user layer defined.

6.5 Inputs Channel 1 – 8 button

Quick page navigation button to display inputs channel 1 to 8 on the screen.

6.6 Inputs Channel 9 – 16 button

Quick page navigation button to display inputs channel 9 to 16 on the screen.

6.7 Output Channel button

Quick page navigation button to display output channel on the screen.

6.8 Bus Send Fader Follow button

- Fader follow button allows the user to quickly perform bus send to the channel with the fader.
- Tab the Input channel once to select the channel then press the SEND button to activate the Fader Follow function.

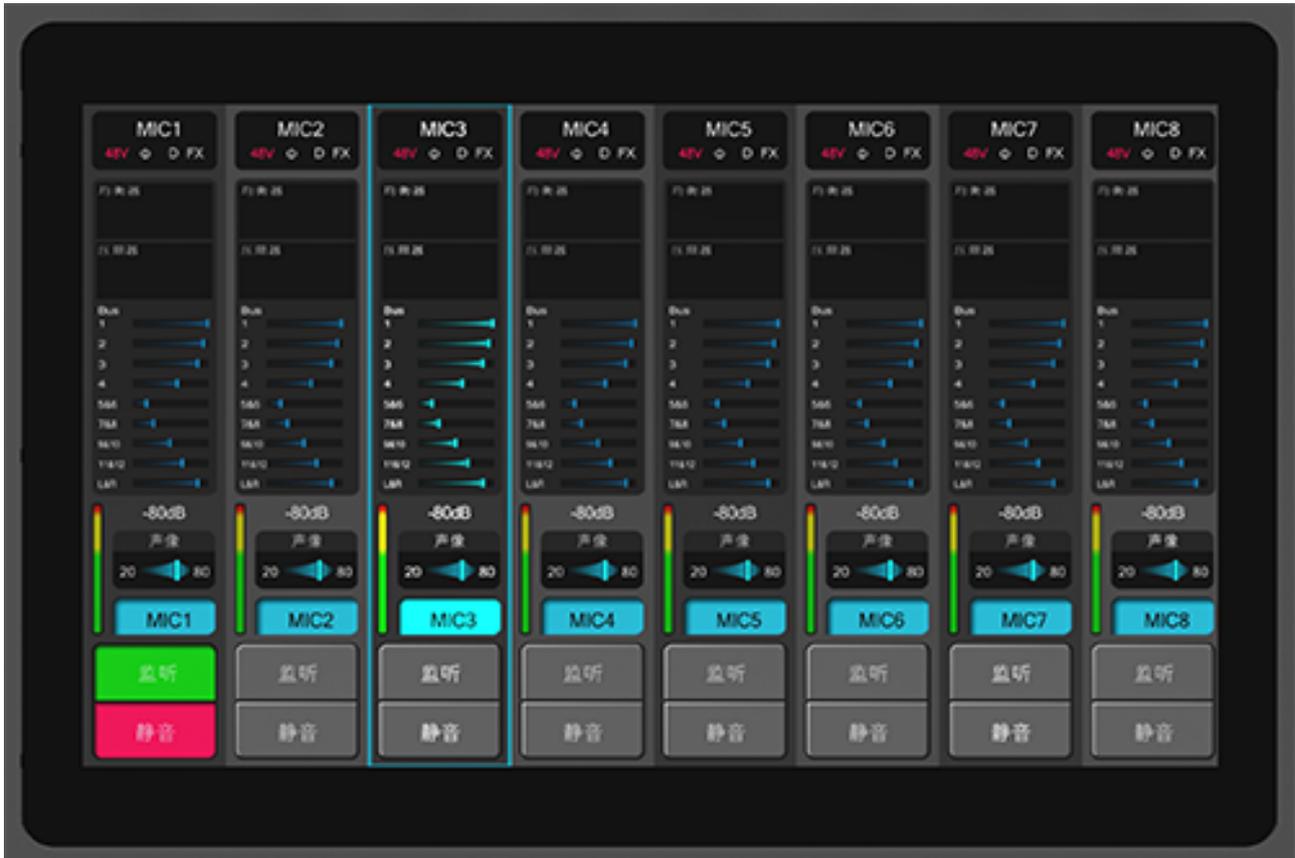
6.9 USB Music Play/Pause button

Enable the user to start playing the music from the USB or Pause the playing at any time.

6.10 Master Output button

Display the LR channel strip on the screen.

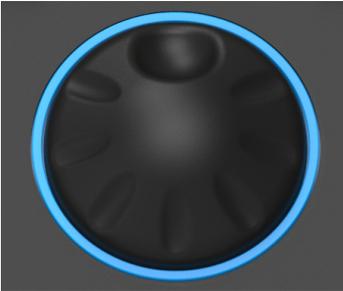
7. 10.1" 1280×800 Pixel IPS Touchscreen



A Liquid Crystal Display screen technology that offers excellent colour reproduction that translates into colour accuracy and better image quality. IPS panels introduce an 8-bit RGB colour depth and ability to produce an extraordinary 16.7 million possible colours. IPS touchscreens offer full HD, minimal colour shifts and no image.

For more information about each screen operation instruction, please refer to the “**FEST Digital Mixer Software Manual**” PDF file.

8. Adjuster Rotary



This large rotary is a multi-function purpose adjuster. It served the purpose to adjust the selected parameter on the screen.

- Quick rotating to left or right for fast adjusting
- Rotate slowly for slow increment
- Press and hold down for fine tuning.

Example:

With the Delay function selected on the screen.



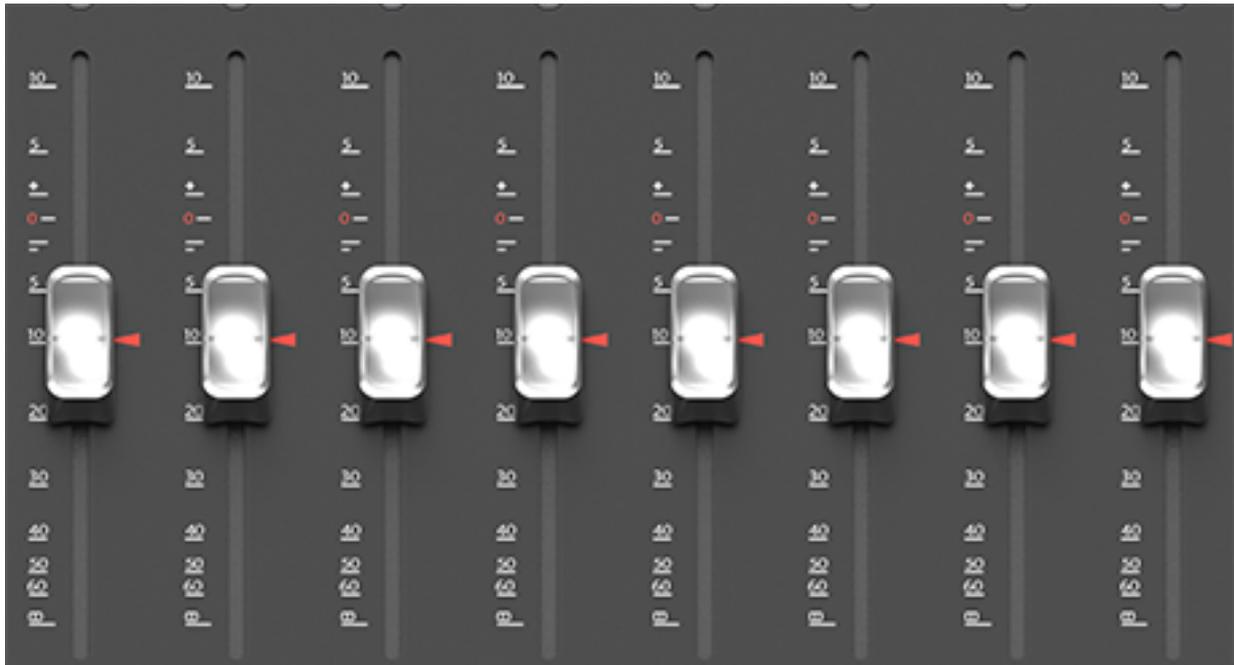
Quick Rotate to left or right will increase or decrease the Delay parameter Integer value in multiple ms steps

Rotate slowly will increase or decrease the Delay parameter Integer in 1 ms step

Press and hold will increase or decrease the Delay parameter Decimal in 0.1 ms step

9. 100mm Motorised Fader

A built-in state-of-the-art motorized fader ensures advanced transport functionality and control for easy mixing and combines the accuracy and convenience of digital automation with the unrivaled analogue sound produced.



The fader function depends on the screen display above the fader. These faders are multi-function purpose corresponding to the display.

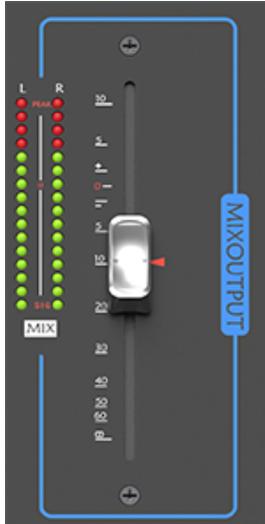
When button 6.5 or 6.6 or 6.7 pressed, the fader act as inputs or output channel fader

Minimum: -80 dB
Maximum: +10 dB

When button 6.8 + Solo or 6.8 + Mute pressed. The fader act as Bus Send for the selected channel.

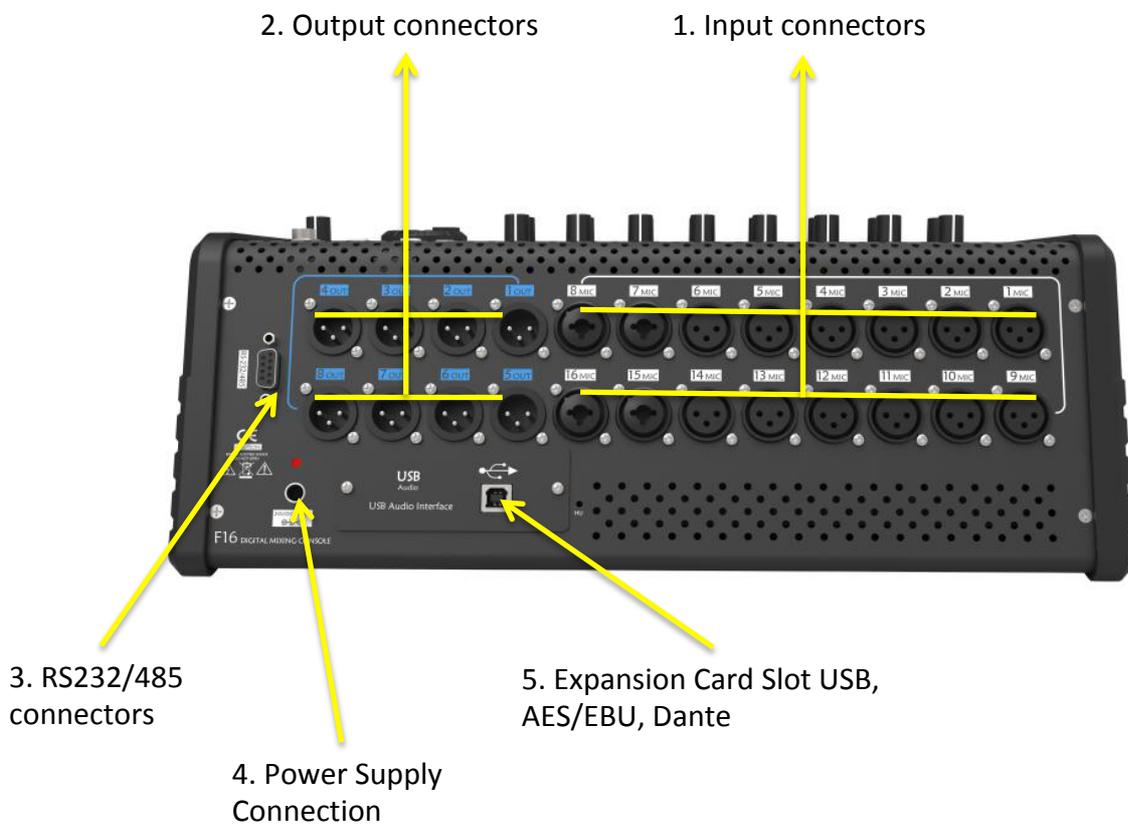
Minimum: -80 dB
Maximum: +10 dB

10. Physical Main Output Fader



This physical Main Output Fader allows the user for quick adjusts to the master output volume. The 16 segment high-precision main output level meter enables the user has a better monitoring of the main output level.

11. Rear Panel View



F16 Rear Panel

1. Input Connectors

- a) 12x NEUTRIK XLR Connectors
 - ✓ Input impedance XLR: $3k\Omega$
 - ✓ Frequency Response: 20Hz–20kHz (+/-0.5dB)
 - ✓ Max. Input Level: +20dBu (balanced)
 - ✓ S/N Ratio: 105dB
 - ✓ Gain Range: 70dB
 - ✓ THD: 0.005%
 - ✓ Phantom power: +48V (CH-1 to CH-16)
- b) 4x NEUTRIK COMBO Connectors
 - ✓ Input impedance: $20k\Omega$
 - ✓ Max. Input Level: +30dBu (balanced)
 - ✓ Frequency Response: 20Hz–20kHz (+/-0.5dB)
 - ✓ THD: 0.008%
 - ✓ Gain Range: 70dB
 - ✓ S/N Ratio: 105dB
 - ✓ Phase: Normal/Reverse
 - ✓ Delay: 0 to 200msec

2. Output Connectors

- a) 8 assignable outputs XLR
- b) Default Master LR at connector 7 & 8
- c) 4x NEUTRIK XLR Connectors
- d) THD: 0.005%(20 Hz–20 kHz)
- e) Frequency Response: 20Hz–20kHz (+/-0.5dB)
- f) Max. Output level: +18 dBu
- g) Output impedance: 470Ω

3. RS232/485Connector

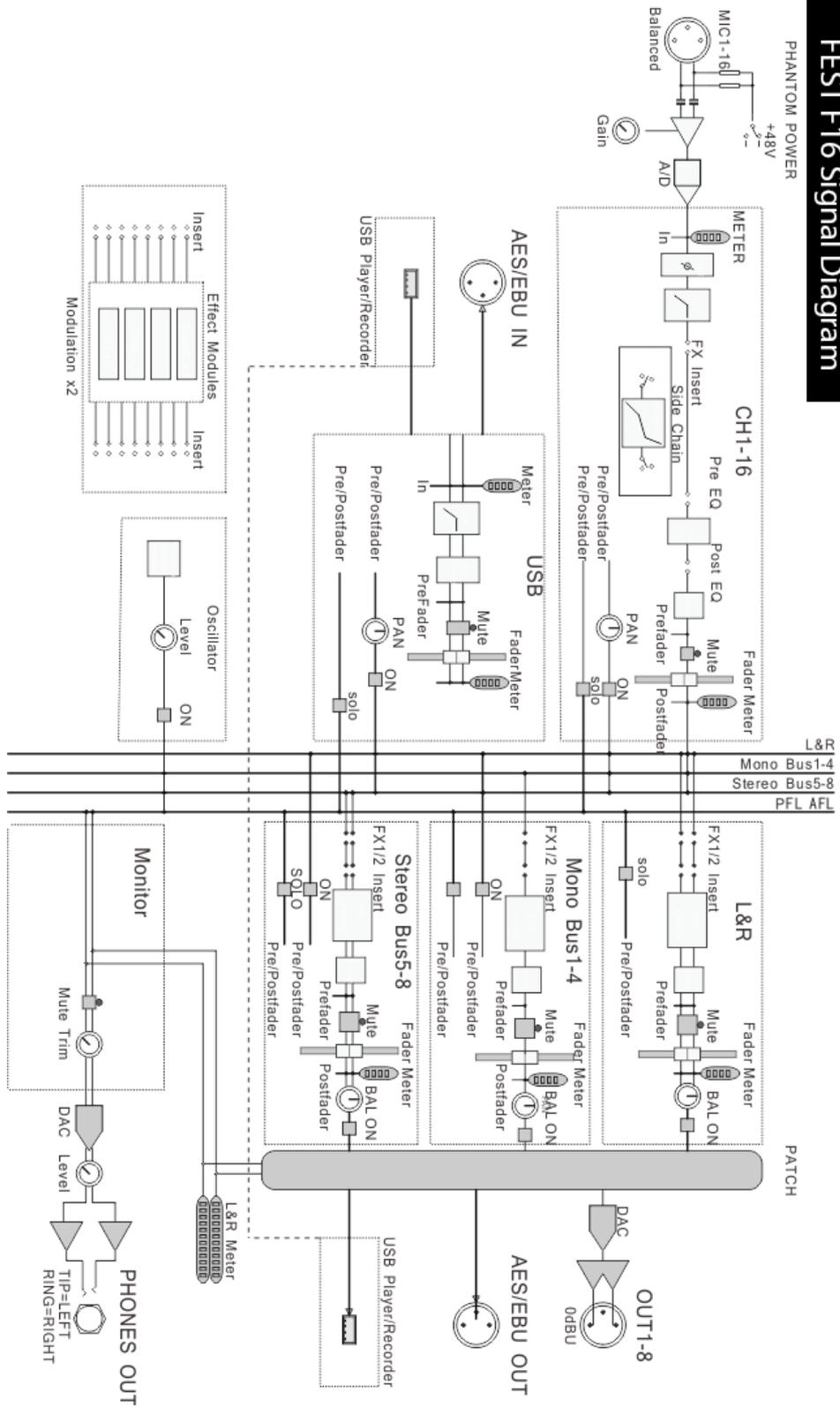
4. Power Supply Connection

5. Expansion Card Slot(Optional)

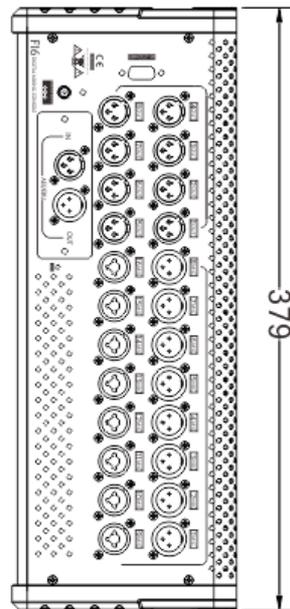
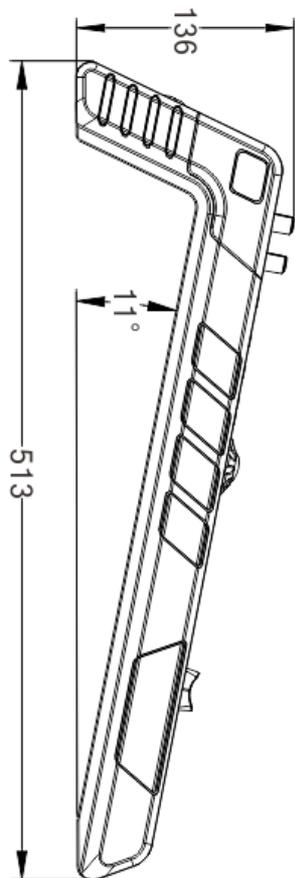
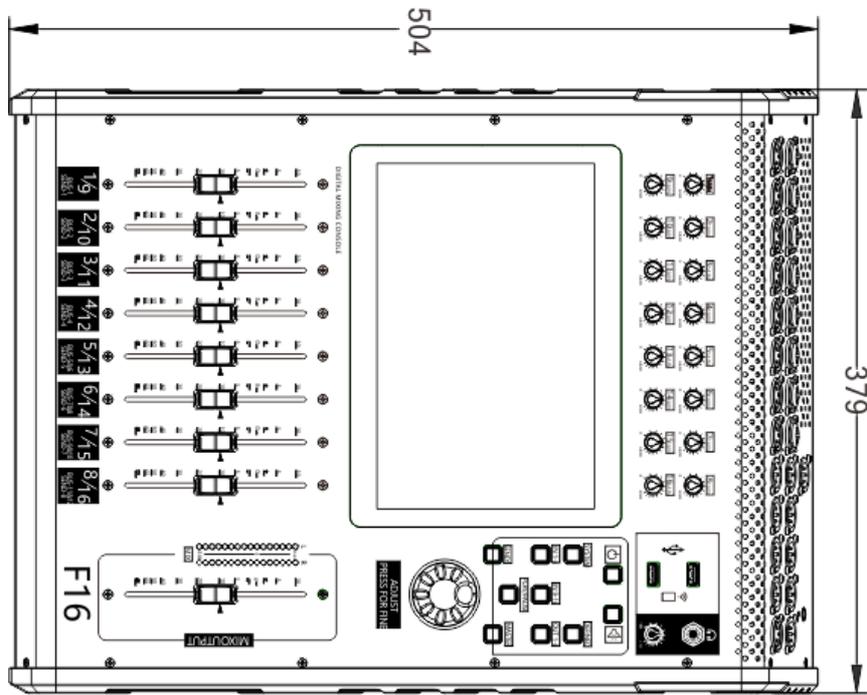
- a) Support FEST USB Card – 2 channel in/out
- b) Support FEST AES/EBU Card – 2 channel in/out
- c) Support FEST Dante Card – 2 channel in/out

12. Signal Diagram

FEST F16 Signal Diagram



13. Dimension



14. F16 Specification

Section	Description	Value
Display	IPS Touchscreen	10.1 inches 1280 x 800 pixels
Mic Inputs	Mic Inputs	16 channel inputs (balanced)
	Mic input connector	12x XLR + 4x COMBO connectors
	Input impedance XLR	3k Ω
	Frequency Response	20Hz–20kHz (+/-0.5dB)
	Max. Input Level	+20dBu (balanced)
	S/N Ratio	105dB
	Gain Range	60dB
	THD	0.005%
	Phantom power	+48V (CH-1 to CH-16)
Line Inputs	Line Inputs	4x COMBO inputs
	Input impedance	20k Ω
	Max. Input Level	+30dBu (balanced)
	Frequency Response	20Hz–20kHz (+/-0.5dB)
	THD	0.008%
	Gain Range	60dB
	S/N Ratio	105dB
	Phase	Normal/Reverse
	Delay	0 to 200ms
EQ	4 Band Equalizer	Frequency: 20Hz-20kHz +/-18dB Q= 0.5 to 10.0 HPF, Low, Low Mid, High Mid, High Mode: Bypass /Flat /Library
Dynamic	Gate	Threshold: –80dB to 0dB Attack: 0.5ms to 100s Release: 2ms - 2s Hold: 2ms - 2s Depth: –80dB to 0dB
	Compressor	Threshold= –80dB to 0dB Attack: 0.5ms to 100s Release: 2ms - 2s Gain: –12 dB to +12dB Ratio: 1.0 to 20

14. F16 Specification *(continue)*

XLR Outputs	Main Outputs (Balanced)	8 assignable outputs XLR L/R + 4x Mono Aux + 4x Stereo Group
	THD	0.005%(20 Hz–20 kHz)
	Frequency Response	20Hz–20kHz (+/-0.5dB)
	Max. Output level	+18 dBu
	Output impedance	470Ω
Headphone	Headphones Output connector	TRS jack
	Headphones Output Impedance	100Ω
	Max. Output level	+22 dBu
Digital In/ Out	Digital I/O	AES/EBU in and out (optional) USB stereo input and Rec function
	USB Format	2.0
	USB Maximum memory capacity	32GB
	I/O latency	<1.8ms
	Recording format	wav
General	Maximum Voltage Gain	70dB input to bus out
	Dynamic range	106dBu analog in to analog out
	Cosstalk	-85dB
	AD/DA Converter	Up to 24Bit/192KHz
	Signal processing	40-bit floating point
	FX Modules	Modulationx2, Delayx2, Reverbx2
	GEQ	2 x 31 bands
	Screen Resolution	10.1" touchscreen 1280X800
	Faders	9x 100mm faders full-motorized
System	WIFI external USB adapter	
Hardware	Power supply	External. 24V DC (AC 90-240V 50/60Hz)
	Power consumption	50W
	Dimension	(DxWxH) 504 x 379 x 136mm
	Net weight	6.5 kgs
	Gross weight	8.5 kgs
	Included Accessories	Wifi USB adapter Power Supply / Power Cord USB desk light

FEST

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