

RME Fireface III

Website: <https://rme-audio.de/fireface-ufx-3.html>

Fireface UFX III

188-Channel, 24-Bit/192kHz high-end USB 3 Audio Interface

Details:

The Multichannel Flagship Interface

The Fireface UFX III is the center of any multitrack studio, handling up to 94 channels I/O with ease. Its unprecedented flexibility, compatibility, the inclusion of DUREC (Direct USB Recording) and RME's famous low latency hardware and driver designs guarantee flawless operation in any mode and application.

Packed with professional features, including SteadyClock FS, MADI I/O (64 channels), a powerful DSP, USB 3.0 (full 94 channel I/O Class Compliant ready), TotalMix FX, Direct USB Recording, and support for the Advanced Remote Control USB (available separately), the Fireface UFX III is the professional's preferred tool for multitrack recording, mixing and mastering.

The Fireface UFX III is based on a newly developed analog and digital board. While the analog board offers, for example, DC-coupled analog outputs as well as new AD and DA converters with improved THD+N value, the digital board also enables interesting new features thanks to updated high-tech components.

Connectivity and Features:

- 12 x Analog I/O
- 4 x XLR/TRS Mic/Inst/Line

- 2 x Phones Output
- 1 x AES/EBU I/O
- 2 x ADAT I/O
- 2 x SPDIF I/O
- 1 x Word Clock I/O
- 1 x MAD1 optical I/O
- 1 x MAD1 I/O coaxial
- 2 x MIDI I/O
- RME USB 3.0
- TotalMix FX
- ARC USB
- DURec
- Class Compliant Mode
- AutoSet Digital Gain Control
- DC-coupled Outputs
- Including FX
- SteadyClock FS

Powerful USB 3 Performance

The front panel of the Fireface UFX III provides four high-performance XLR/TRS combo inputs for microphone, instrument and line signals, two stereo headphone jacks with +19 dBu output level, MIDI I/O, and a USB port. In combination with the DURec function (Direct USB Recording), the USB port allows independent recording of selected input and output signals (up to 80 channels) to a connected USB storage medium.

The rear panel reveals the full connectivity of the Fireface UFX III. Besides another MIDI I/O, the two optical ADAT I/Os, an AES/EBU I/O, and eight balanced analog outputs with line level (including XLR stereo monitor outputs) are available. With the new Multi-Mode, the two ADAT I/Os can be used as separate optical SPDIF inputs and outputs in addition to the AES I/O. Furthermore, the Fireface UFX III offers an optical MAD1 interface (SC) with 64 bidirectional channels. The Word

Clock connectors (BNC) work as additional coaxial MADI input and output if required.

Comprehensive MADI Connectivity

The Fireface UFX III opens the doors to a host of RME and 3rd party digital and analog I/O solutions. Expanding your analog channel count, the ability to route/mix within the digital domain through numerous sources presents many flexible options. Multiple external MADI devices can also be connected in series.

To further enhance MADI flexibility, the Fireface UFX III boasts some typical RME-style features. For example in USB 2 mode, which is limited to 30 channels I/O (12 analog plus 16 ADAT plus AES), the MADI I/O is still available via RME's integrated hardware mixer TotalMix FX. Word Clock I/O (BNC) can be switched to MADI I/O (coaxial), and a special split mode even supports the use of both MADI I/Os simultaneously, with 32 channel each on optical and coaxial.

Unrivalled flexibility in connectivity and expansion – Analog, ADAT, MADI, AES, SPDIF, USB 2 & USB 3

Powerful Applications for Mixing, Monitoring and Measurement included

The Fireface UFX III comes with the TotalMix FX DSP mixer offering comprehensive routing and monitoring options, as well as the DIGICheck Analyzer allowing to measure and analyze the digital data feed in both directions with maximum precision. TotalMix FX can completely replace an external mixer, enabling the creation of multiple latency-free monitor mixes with EQ, Dynamics, Reverb and Delay for any outputs, incl. main monitors and headphone mixes for musicians.

The additional TotalMix Remote is a remote control for TotalMix FX, to control the hardware mixer and effects in RME audio interfaces. TotalMix Remote mirrors the current state of the host system on the iPad and Windows/Mac computers - the entire mixing state, the complete routing, all FX settings, up to the level meters, and everything in real-time. Easily adjust all the mixer and FX settings from a distance, via Ethernet and WiFi.

TotalMix FX mixer with comprehensive routing, monitoring and effects options.

DC-Coupled Outputs - CV/Gate Voltage Control

Most audio interfaces are traditionally designed with what is called 'AC-coupled outputs', where capacitors are used to filter out any extreme low frequencies.

Whilst these frequencies are generally considered undesirable for audio - eating into headroom and potentially causing damage to other equipment - one instance where DC-coupling remains desirable is the world of modular synthesizers, where static or slow-moving signals are used for control over various parameters such as pitch note values or LFOs.

All of the Fireface UFX III's line-level outputs are fully DC-coupled, allowing for the sending of control voltages (CV) or Gate information to modular synthesizers (such as the popular Eurorack and Moog/MOTM/Synthesizers formats) and other studio hardware.

Control all device states directly from the front panel for convenient, direct access to all features.

USB 3 Class Compliant Audio

The Fireface UFX III operates in two different modes: driver-based USB 3 and Class Compliant. The Class Compliant mode is a standard that is natively supported by operating systems like Windows, Mac OSX and Linux distributions. No proprietary drivers are required, the device will be directly recognized when the CC firmware is loaded.

The Fireface UFX III is RME's first audio interface with full USB 3.0 support in Class Compliant Mode. This makes all channels available in driverless operation for Linux, Mac and iPadOS. An iPad Pro with USB C can manage up to 94 channels for recording and playback in TotalMix FX for iPad and on system level.

ARC USB Remote Control - Plug'n Play Plus

The optional available ARC USB connects to your computer via USB, and talks to TotalMix FX directly. It has 15 freely assignable and illuminated buttons, one encoder wheel, and a TS jack to connect a foot switch.

The ARC USB is a USB 1.1 MIDI remote control for the Fireface UFX III. Thanks to operating as a UAC 1 class device, it is natively compatible to Windows and Mac OS X. As soon as it is present in the operating system, TotalMix FX will automatically detect the ARC USB, and communicate with it via simple MIDI remote commands to control the UFX III. All 188 input and output channels can be individually chosen for recording and playback

DURec (Direct USB Recording)

DURec is an integrated digital recorder for all inputs and outputs directly to USB memory devices via the front USB port. The Fireface UFX III records on USB thumb drives or hard drives with up to 2 TB capacity. The recording functionality is provided by the internal DSP, and is therefore independent from a connected Windows or Mac computer. The Direct USB Recording converts the Fireface UFX Series both into a stand-alone field recorder and a powerful multichannel live player for previous recordings, e. g. for virtual sound checks. Live concerts, band rehearsals or spontaneous jam sessions can be directly recorded and played back from the medium - even completely stand-alone without computer or software.

More Outstanding Features:

TotalMix FX - Mixing/Routing with superior features for Studio and Live Work

Since 2001 TotalMix added unlimited routing and mixing to RME's audio interfaces. Its unique capability to create as many independent submixes as output channels available turned it into the most flexible and powerful mixer of its kind.

DigiCheck - The Secret Weapon of High Resolution Audio Measurements

RME Audio interfaces not only provide you with a professional digital audio interface, but also with a free available software tool: DigiCheck, for metering, testing, measuring and analyzing digital audio streams.

SteadyClock FS - Reference class Digital Clocking

Excellent performance in all clock modes and High Quality Analog Conversion to hear your mix as it is, with lowest jitter and highest jitter immunity.

RME USB - Transport audio with lowest latency and industry leading stability

Use your RME audio interface on Mac and PC with reliable, stable, and regularly updated drivers for our products. RME Audio develops its own interface core, it's not dependent on 3rd parties for upgrades, modifications or bug fixes, so customers can use latest operating systems without interruption or delay."

Room EQ in TotalMix FX

The latest Room EQ addition provides an optimized handling of the existing 3-band PEQ in TotalMix FX, including 9-band PEQ, Volume Calibration and Crossfeed function.

Specifications:

Analog:

AD, Line In 1-8, rear

- Input: 6.3 mm TRS, electronically balanced
- Signal to Noise ratio (SNR) @ LoGain: 116 dB (AES17), 118 dBA
- Signal to Noise ratio (SNR) @ +4 dBu: 115 dB (AES17), 117 dBA

- Frequency response @ 44.1 kHz, -0.1 dB: 8.9 Hz – 20.4 kHz
- Frequency response @ 96 kHz, -0.5 dB: 4.3 Hz – 45.2 kHz
- Frequency response @ 192 kHz, -1 dB: 3 Hz – 89 kHz
- Filter: Short Delay Sharp, 5 / 5 / 6 samples delay
- THD @ -1 dBFS: < -120 dB, < 0.0001 %
- THD+N @ -1 dBFS: < -110 dB, < 0.00032 %
- Channel separation: > 110 dB
- Maximum input level: +19 dBu
- Input: 6.3 mm TRS jack, electronically balanced
- Input impedance @ 1 kHz: 10 kOhm unbalanced, 10.6 kOhm balanced
- Input sensitivity switchable between Lo Gain and +4 dBu
- Input level for 0 dBFS @ Lo Gain: +19 dBu
- Input level for 0 dBFS @ +4 dBu: +13 dBu
- Variable digital gain: 0 to +12 dB
- Minimum level for 0 dBFS: +1 dBu, -1.2 dBV

Microphone In 9-12, front

As AD, but:

- Input: XLR, electronically balanced
- Input impedance @ 1 kHz: 3.4 kOhm
- Signal to Noise ratio (SNR) @ 0 dB Gain: 117 dB (AES17), 119.5 dBA
- THD+N @ -1 dBFS, Gain 20 dB: < -110 dB, < 0.00032 %
- Frequency response @ 44.1 kHz, -0.1 dB: 10.7 Hz – 20.3 kHz
- Frequency response @ 96 kHz, -0.5 dB: 5.1 Hz – 45.0 kHz
- Frequency response @ 192 kHz, -1 dB: 3.5 Hz – 88 kHz
- EIN @ 60 dB Gain, 150 Ohm, A-Weighted: -129.8 dBu
- Gain range: 75 dB
- Maximum input level, Gain 0 dB: +18 dBu
- Maximum input level, Gain 75 dB: -57 dBu
- CLIP LED: 0 dBFS
- SIG LED: -60 dBFS

Instrument In 9-12, front

As AD, but:

- Input: 6.3 mm TS jack, unbalanced
- Input impedance @ 1 kHz: 1 MOhm
- Signal to Noise ratio (SNR): 116 dB (AES17), 118.5 dBA
- Frequency response @ 44.1 kHz, -0.5 dB: 2.4 Hz – 20.0 kHz
- Frequency response @ 96 kHz, -1 dB: 1.6 Hz – 28 kHz
- Frequency response @ 192 kHz, -3 dB: 0.8 Hz – 54 kHz
- THD+N @ -1 dBFS, Gain 20 dB: < -107 dB, < 0.00045 %
- Gain range: 42 dB
- Maximum input level, Gain 8 dB: +21 dBu
- Maximum input level, Gain 50 dB: -21 dBu

DA, Line Out 3-8, rear

- Output: 6.3 mm TRS jack, servo-balanced
- Signal to Noise ratio (SNR) @ HiGain: 116.5 dB (AES17), 118.5 dBA
- Signal to Noise ratio (SNR) @ +4 dBu: 116 dB (AES17), 118 dBA
- Signal to Noise ratio (SNR) @ -10 dBV: 107 dB (AES17), 109 dBA
- Frequency response @ 44.1 kHz, -0.1 dB: 0 Hz – 20.2 kHz
- Frequency response @ 96 kHz, -0.5 dB: 0 Hz – 44.6 kHz
- Frequency response @ 192 kHz, -1 dB: 0 Hz – 77.5 kHz
- THD+N: < -110 dB, < 0.00032 %
- Channel separation: > 110 dB
- Output level switchable Hi Gain, +4 dBu, -10 dBV
- Output level at 0 dBFS @ Hi Gain: +19 dBu
- Output level at 0 dBFS @ +4 dBu: +13 dBu
- Output level at 0 dBFS @ -10 dBV: +2 dBV (+4.2 dBu)
- Output impedance: 75 Ohm

DA - Stereo Monitor Output XLR (1-2)

As DA, but:

- Output: XLR, balanced

- Output level switchable 24 dBu, Hi Gain, +4 dBu, -10 dBV
- Output level at 0 dBFS @ 24 dBu: +24 dBu
- Output level at 0 dBFS @ Hi Gain: +19 dBu
- Output level at 0 dBFS @ +4 dBu: +13 dBu
- Output level at 0 dBFS @ -10 dBV: +2 dBV (+4.2 dBu)
- Output impedance: 150 Ohm

DA - Stereo Monitor Output Phones (9-12)

As DA, but:

- Output: 2 x 6.3 mm TRS stereo jack, unbalanced
- Maximum output level at 0 dBFS, High: +19 dBu
- Maximum output level at 0 dBFS, Low: +2 dBV
- Max power per channel @ 32 Ohm load, 0.02% THD: 200 mW (2.5 Vrms, +10 dBu)
- Signal to Noise ratio (SNR) @ High: 116.5 dB (AES17), 118.5 dBA
- Signal to Noise ratio (SNR) @ Low: 115 dB (AES17), 117 dBA
- Output impedance: 2 Ohm

MIDI:

- 2 x MIDI I/O via 5-pin DIN jacks
- Galvanically isolated by optocoupled input
- Hi-speed mode: Jitter and response time typically below 1 ms
- Separate 128 byte FIFOs for input and output
- 2 x MIDI I/O via MADI
- Invisible transmission via User bit of channel 56 (up to 48 kHz)
- Invisible transmission via User bit of channel 28 (up to 96 kHz)

Digital:

- Clocks: Internal, ADAT, AES, SPDIF, word clock
- Jitter suppression: > 50 dB (> 1 Hz)

- Effective clock jitter influence on AD and DA conversion: near zero
- PLL ensures zero dropout, even at more than 100 ns jitter
- Digital Bitclock PLL for trouble-free varispeed ADAT operation
- Supported sample rates: 28 kHz up to 200 kHz

Digital Inputs:

MADI

- Optical via FDDI duplex SC connector
- 62.5/125 and 50/125 compatible
- Coaxial via BNC (Word Clock input), 75 Ohm
- High-sensitivity input stage (< 0.2 Vpp)
- Accepts 56 channel and 64 channel mode, plus 96k Frame
- Standard: up to 64 channels 24 bit 48 kHz
- S/MUX: up to 32 channels 24 bit 96 kHz
- S/MUX4: up to 16 channels 24 bit 192 kHz
- Lock range: 25 kHz – 54 kHz
- Jitter suppression: > 50 dB (> 1 Hz)

AES/EBU

- 1 x XLR, transformer-balanced, galvanically isolated, according to AES3-1992
- High-sensitivity input stage (< 0.3 Vpp)
- SPDIF compatible (IEC 60958)
- Accepts Consumer and Professional format
- Lock range: 27 kHz – 200 kHz
- Jitter suppression: > 50 dB (> 1 Hz)

ADAT Optical

- 2 x TOSLINK, format according to Alesis specification
- Standard: 2 x 8 channels 24 bit, up to 48 kHz
- Double Speed (S/MUX): 2 x 4 channels 24 bit 96 kHz
- Quad Speed (S/MUX4): 2 x 2 channels 24 bit 192 kHz

- Bitclock PLL ensures perfect synchronisation even in varispeed operation
- Lock range: 31.5 kHz – 50 kHz
- Jitter suppression: > 50 dB (> 1 Hz)

SPDIF optical (ADAT 2)

- 2 x optical, according to IEC 60958
- Accepts Consumer and Professional format
- Lock range: 27 kHz – 200 kHz
- Jitter suppression: > 50 dB (> 1 Hz)

Word Clock

- BNC
- Internal termination 75 Ohm switchable
- Automatic Double/Quad Speed detection and internal conversion to Single Speed
- SteadyClock guarantees super low jitter synchronization even in varispeed operation
- Not affected by DC-offsets within the network
- Signal Adaptation Circuit: signal refresh through auto-center and hysteresis
- Overvoltage protection
- Level range: 1.0 Vpp – 5.6 Vpp
- Lock Range: 27 kHz – 200 kHz
- Jitter suppression: > 50 dB (> 1 Hz)

Digital Outputs:

MADI

- Optical via FDDI duplex SC connector
- 62.5/125 and 50/125 compatible
- Coaxial via BNC (Word Clock input), 75 Ohm
- High-sensitivity input stage (< 0.2 Vpp)
- Accepts 56 channel and 64 channel mode, plus 96k Frame

- Standard: up to 64 channels 24 bit 48 kHz
- S/MUX: up to 32 channels 24 bit 96 kHz
- S/MUX4: up to 16 channels 24 bit 192 kHz
- Lock range: 25 kHz – 54 kHz
- Jitter suppression: > 50 dB (> 1 Hz)

AES/EBU

- XLR, transformer-balanced, galvanically isolated, according to AES3-1992
- Output level Professional 4.5 Vpp, Consumer 2.6 Vpp
- Format Professional according to AES3-1992 Amendment 4
- Format Consumer (SPDIF) according to IEC 60958
- Single Wire mode, sample rate 28 kHz up to 200 kHz

ADAT

- 2 x TOSLINK, format according to Alesis specification
- Standard: 2 x 8 channels 24 bit, up to 48 kHz
- Double Speed (S/MUX): 2 x 4 channels 24 bit 96 kHz
- Quad Speed (S/MUX4): 2 x 2 channels 24 bit 192 kHz

SPDIF optical (ADAT 2)

- 2 x optical, according to IEC 60958
- Accepts Consumer and Professional format
- Lock range: 27 kHz – 200 kHz
- Jitter suppression: > 50 dB (> 1 Hz)

Word Clock

- BNC
- Max. output voltage: 5 Vpp
- Output voltage @ 75 Ohm termination: 4.0 Vpp
- Output impedance: 10 Ohm
- Frequency range: 27 kHz – 200 kHz

General:

- Power supply: Internal switching PSU, 100 - 240 V AC, 36 Watts
- Idle power consumption: 19 Watts
- Typical power consumption: 22-25 Watts
- Dimensions including rack ears (WxHxD): 483 x 44 x 210 mm (19" x 1.73" x 8.5")
- Dimensions without rack ears (WxHxD): 440 x 44 x 210 mm (17.3" x 1.73" x 8.3")
- Total depth: 240 mm (9.4")
- Weight: 3 kg (6.6 lbs)
- Temperature range: +5° up to +50° Celsius (41° F up to 122°F)
- Relative humidity: < 75%, non condensing

Drivers:

USB:

Flash Update:

Driver / Firmware Update / Software:

Windows Flash Update Tool for MADIface XT/USB/Pro, OctaMic XTC, ADI-2 Pro Series & DAC, Digiface USB, UFX II/III, UFX+, Digiface Dante, Digiface AVB, USB.IO

Update to firmware: (* latest change)

MADIface XT: USB 191 PCIe 56 DSP 42

MADIface XT II: USB 3/2 321, DSP 57, CC 11*

MADIface USB: 25 (6), 102 (7)

MADIface Pro: 73

OctaMic XTC: 47/26

ADI-2 Pro series (6): FPGA 267, DSP 128

ADI-2 Pro series (7): FPGA 412, DSP 128

ADI-2 DAC series: FPGA 81, DSP 62
ADI-2/4 Pro SE: FPGA 73, DSP 40
ADI-2/4 Pro SE: FPGA 210, DSP 40
UFX II: USB 26 DSP 28 CC 15 (A), USB 115 DSP 28 CC 112 (E), USB 206 DSP 28 CC 208 (7)*
Fireface UFX III: USB 20 DSP 23 CC 44
UFX+: USB 55 DSP 59 Thunderbolt 112 (A), USB 72 DSP 60 Thunderbolt 167 (E)*
Digiface USB: 18 (X), 35 (G)
Digiface AVB: 261*
Digiface Dante: 57
Digiface Ravenna: 55
Digiface AES: USB 47 MCU 17 CC 11
USB I/O: USB 6, CC 4*
2024-09-02
fut_madiface_win.zip

Mac OS Flash Update Tool for MADIface XT/USB/Pro, OctaMic XTC, ADI-2 Pro Series & DAC, Digiface USB/AES/Dante/Ravenna, UFX II/III, USB.IO

Update to version: (*latest changes)
MADIface XT: USB 3/2 191, PCIe 56, DSP 42
MADIface XT II: USB 3/2 321, DSP 57, CC 11*
MADIface USB, Hw Rev 6: 25
MADIface USB, Hw Rev 7: 102

MADIface Pro: 73

OctaMic XTC: USB 47, DSP 26

ADI-2/4 Pro SE: FPGA 72, DSP 40
ADI-2/4 Pro SE: FPGA 210, DSP 40*
ADI-2 Pro Series: FPGA 267, DSP 128
ADI-2 Pro Series: FPGA 412, DSP 128

ADI-2 DAC: FPGA 81, DSP 62

Digiface USB, Hw Rev X: 18

Digiface USB, Hw Rev G: 35

Fireface UFX II, Hw Rev A: USB 26, DSP 28, CC 15*

Fireface UFX II, Hw Rev E: USB 115, DSP 28, CC 112*

Fireface UFX II, Hw Rev 7: USB 206, DSP 28, CC 208*

Fireface UFX III: USB 20 DSP 23 CC 44*

Digiface Dante: 57

Digiface Ravenna: 55

Digiface AES: USB 47, MCU 17, CC 11

USB I/O: USB 6, CC 4*

Mac OS X:

Driver / Firmware Update / Software:

macOS 11 or up USB Series DriverKit Driver

macOS 11 or up (Big Sur, Monterey, Ventura and up) Check OS Version USB series DriverKit driver, **v. 4.17**.

macOS 11 and up USB Series Kernel Extension Driver

USB 2/3 Kernel Extension driver for macOS 11 (Big Sur, Monterey, Ventura and up) Check OS Version. **Version 3.33**. Supports **Intel and Mx**.

macOS 10.12 up to 10.15 driver for Fireface UFX / UFX+ / UFX III, UFX II, 802, UCX, UCX II, UC, Babyface, Babyface Pro, MADiface XT/USB/Pro, Digiface USB/AES/Dante/Ravenna

version **3.223**. Compatible to 10.12 (macOS Sierra) up to 10.15 (macOS Catalina) Check OS Version. **Mx users please download macOS 11 and up USB Series Driver.**

Mac OS Flash Update Tool for MADIface XT/USB/Pro, OctaMic XTC, ADI-2 Pro Series & DAC, Digiface USB/AES/Dante/Ravenna, UFX II/III, USB.IO

Update to version: (*latest changes)

MADIface XT: USB 3/2 191, PCIe 56, DSP 42

MADIface XT II: USB 3/2 321, DSP 57, CC 11*

MADIface USB, Hw Rev 6: 25

MADIface USB, Hw Rev 7: 102

MADIface Pro: 73

OctaMic XTC: USB 47, DSP 26

ADI-2/4 Pro SE: FPGA 72, DSP 40

ADI-2/4 Pro SE: FPGA 210, DSP 40*

ADI-2 Pro Series: FPGA 267, DSP 128

ADI-2 Pro Series: FPGA 412, DSP 128

ADI-2 DAC: FPGA 81, DSP 62

Digiface USB, Hw Rev X: 18

Digiface USB, Hw Rev G: 35

Fireface UFX II, Hw Rev A: USB 26, DSP 28, CC 15*

Fireface UFX II, Hw Rev E: USB 115, DSP 28, CC 112*

Fireface UFX II, Hw Rev 7: USB 206, DSP 28, CC 208*

Fireface UFX III: USB 20 DSP 23 CC 44*

Digiface Dante: 57

Digiface Ravenna: 55

Digiface AES: USB 47, MCU 17, CC 11

USB I/O: USB 6, CC 4*

Windows:

Driver / Firmware Update / Software:

Windows Flash Update Tool for MADiface XT/USB/Pro, OctaMic XTC, ADI-2 Pro Series & DAC, Digiface USB, UFX II/III, UFX+, Digiface Dante, Digiface AVB, USB.IO

Update to firmware: (* latest change)

MADiface XT: USB 191 PCIe 56 DSP 42

MADiface XT II: USB 3/2 321, DSP 57, CC 11*

MADiface USB: 25 (6), 102 (7)

MADiface Pro: 73

OctaMic XTC: 47/26

ADI-2 Pro series (6): FPGA 267, DSP 128

ADI-2 Pro series (7): FPGA 412, DSP 128

ADI-2 DAC series: FPGA 81, DSP 62

ADI-2/4 Pro SE: FPGA 73, DSP 40

ADI-2/4 Pro SE: FPGA 210, DSP 40

UFX II: USB 26 DSP 28 CC 15 (A), USB 115 DSP 28 CC 112 (E), USB 206 DSP 28 CC 208 (7)*

Fireface UFX III: USB 20 DSP 23 CC 44

UFX+: USB 55 DSP 59 Thunderbolt 112 (A), USB 72 DSP 60 Thunderbolt 167 (E)*

Digiface USB: 18 (X), 35 (G)

Digiface AVB: 261*

Digiface Dante: 57

Digiface Ravenna: 55

Digiface AES: USB 47 MCU 17 CC 11

USB I/O: USB 6, CC 4*

Windows 10:Driver / Firmware Update / Software:

Windows USB driver for MADIface XT / USB / Pro, Fireface UFX+ / UFX II / UFX III, OctaMic XTC, ADI-2 Pro/AE/FS/DAC, ADI-2/4 Pro, Digiface USB / AES / Dante / Ravenna, USB.IO

Version 0.9845, Windows 8 and up.

Windows 11:Driver / Firmware Update / Software:

Windows USB driver for MADIface XT / USB / Pro, Fireface UFX+ / UFX II / UFX III, OctaMic XTC, ADI-2 Pro/AE/FS/DAC, ADI-2/4 Pro, Digiface USB / AES / Dante / Ravenna, USB.IO

Version 0.9845, Windows 8 and up.

Windows 7:Driver / Firmware Update / Software:

Windows 7 USB driver for MADIface XT / USB / Pro, Fireface UFX+ / UFX II / UFX III, OctaMic XTC, ADI-2 Pro/AE/FS/DAC, ADI-2/4 Pro, Digiface USB / AES / Dante / Ravenna

Version 0.9827, last driver version for Windows 7.

Windows 8:Driver / Firmware Update / Software:

Windows USB driver for MADIface XT / USB / Pro, Fireface UFX+ / UFX II / UFX III, OctaMic XTC, ADI-2 Pro/AE/FS/DAC, ADI-2/4 Pro, Digiface USB / AES / Dante / Ravenna, USB.IO

Version 0.9845, Windows 8 and up.

DIGICheck:**Mac OS X:**Driver / Firmware Update / Software:

DigiCheck NG macOS

Universal binary, runs natively on Intel and Mx machines. DigiCheck NG V 0.91 requires macOS 10.13 (High Sierra) or up.

DIGICheck 0.73 Mac

EBU R-128 Meter. Surround Audio Scope with ITU weighting. Stereo / Multichannel / Global Level Meter, Spectral Analyser, Vector Audio Scope, Correlation Meter, Bit Statistic & Noise. In this version a display of playback data is not possible via Core Audio, only via hardware level. Supports all cards of the HDSPe, FireWire and USB series. (09/14/2018).

Windows:Driver / Firmware Update / Software:

DIGICheck 5.96 Win

Differences to v 4.53: EBU R-128 Meter. Surround Audio Scope with ITU weighting. Simultaneous usage of multiple cards in all functions. Displays fully configurable (e.g. channel selection). Multichannel Level Meter freely configurable. MMCSS for Vista. Many improvements on surface and internal operation. Supports all current interfaces plus DIGI 9636/52. DIGI32 series and DIGI96 series are no longer supported. (10/05/2020). V596 adds compatibility for HDSPe MADI FX and XT with DK firmware.

Windows 10:

[Driver / Firmware Update / Software:](#)

DigiCheck NG Windows

DigiCheck NG V 0.91 requires a Direct3D 12 capable graphics card and Windows 10 or up.

Windows 11:

[Driver / Firmware Update / Software:](#)

DigiCheck NG Windows

DigiCheck NG V 0.91 requires a Direct3D 12 capable graphics card and Windows 10 or up.

Software:

Mac OS X:

[Driver / Firmware Update / Software:](#)

TotalMix FX Mac latest version (single file download)

TotalMix FX V 1.97. This zip includes only TotalMix FX, to update TotalMix when using older drivers that come with an older TotalMix FX version.
Installation: Exit TotalMix FX completely and copy the app into the Applications folder, overwriting the old file.

TotalMix Remote Mac

TotalMix Remote V 1.43 - App to remote control TotalMix FX via ethernet and WiFi from other devices with Mac OS 10.12 or up. Universal Binary, supports Intel and Mx. Please note: can not be run on the same computer where the host TotalMix FX is used. This download is not TotalMix FX, which is part of the driver installation.

WAV File Batch Processor V 1.31 Mac

Multichannel WAV File Batch Processor - Converter for single and consecutive multichannel WAV files as recorded by the Fireface UFX, UFX II, UFX+ and UCX II Direct USB Recording function

Windows:

Driver / Firmware Update / Software:

TotalMix FX Windows latest version (single file download)

TotalMix FX V 1.97. This zip includes only TotalMix FX, to update TotalMix when using older drivers that come with an older TotalMix FX version.
Installation: Exit TotalMix FX (right click systray icon) and copy the new version into Windows\System32, overwriting the old file.

TotalMix Remote Windows

TotalMix Remote V 1.43 - Program to remote control TotalMix FX via ethernet and WiFi from other devices with Windows OS (PC, Tablet). Please note: can not be run on the same computer where the host TotalMix FX is used. This download is not TotalMix FX, which is part of the driver installation.

WAV File Batch Processor V 1.31 Windows

Multichannel WAV File Batch Processor - Converter for single and consecutive multichannel WAV files as recorded by the Fireface UFX, UFX II, UFX+ and UCX II Direct USB Recording function.

Website: <https://rme-audio.de/software.html>

Free Software

ADI-2 REMOTE:

Fully-featured Software Control for macOS, iPadOS and Windows

The ADI-2 Remote software controller offers an easy to understand, intuitive and complete interface

for managing all settings and options of the ADI-2 series devices. The app supports ADI-2 DAC, ADI-2 Pro AE (Anniversary Edition), ADI-2 Pro and FS, ADI-2 Pro FS R BE and ADI-2/4 Pro SE.

The option to control the ADI-2 directly via software is not only a welcome addition to anyone who enjoys tinkering with its countless features – namely the on-board parametric EQ, Loudness On/Off and Crossfeed – or experimenting with

the DACs different filter types (SD Sharp, NOS etc). In fact it is extremely useful for any user. EQ settings and even complete setups can be saved and loaded from/to the computer and iPad. EQs for specific headphones or applications can be easily shared with others, backups can be stored/loaded, and device states copied and transferred with ease, on all supported platforms.

The ADI-2 Remote software consists of several main pages: Line input (for 2 Pro and 2/4 Pro), one page per output (Line Out, Phones Out, IEM Out etc), a general Device page with all channel unrelated settings, and a PEQ Editor that can be used to edit, save or load PEQs without changing the currently active EQ.

Under the hood the ADI-2 Remote uses a USB MIDI port to communicate with the hardware device. The connection is the same as usual – via USB 2.0 to a Windows computer, a Mac computer, or an iPad. The used MIDI protocol is available for developers as download from the RME website as well.

TOTALMIX FX:

TotalMix FX - Mixing/Routing with superior features for Studio and Live Work

Since 2001 TotalMix added unlimited routing and mixing to RME's audio interfaces. Its unique capability to create as many independent submixes as output channels available turned it into the most flexible and powerful mixer of its kind.

With supported hardware, TotalMix FX includes a complete effects system, which not only adds flexibility to the recording chain, but also makes latency saddled software solutions obsolete. TotalMix FX (FX on supported cards) can completely replace an external mixer, enabling the creation of multiple latency-free monitor mixes with EQ, Dynamics, Reverb and Delay for any outputs incl. main monitors and headphone mixes for musicians.

TotalMix FX is included as part of the driver (check supported devices). After you've downloaded, installed the latest driver and connected your interface, the mixer window will open automatically.

TotalMix Remote - WiFi Remote Control

TotalMix Remote enhances the power of RME interfaces by enabling remote control via iOS, PC or Mac. With a straightforward set up process — simply enter the IP address of the computer you would like to control with TotalRemix Remote and get going — users can quickly adjust any aspect of TotalMix FX on a host system while walking around the studio with their tablet, or from a control room located elsewhere in the facility. The remote software mirrors the exact state of the host system, including the entire display of the interface, the current input and output routing, and all settings including level meters.

DIGICHECK NG:

DigiCheck - The Secret Weapon of High Resolution Audio Measurements

RME Audio interfaces not only provide you with a professional digital audio interface, but also with a unique software tool: DIGICheck, for metering, testing, measuring and analyzing digital audio streams. 2, 8 or all channel level meters with countless options. Spectral Analyzer, Goniometer and Bit Statistics in professional quality. Even Channel Status readouts are possible. Under Windows DIGICheck also offers a global record function and the direct readout of playback data.

Website: <https://rme-audio.de/digicheck.html>

DIGICheck

Technology:

The Secret Weapon of High Resolution Audio Measurements:

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This TECH INFO describes the functions and the technology used in DIGICheck. Please be aware that DIGICheck works with Windows and Mac OS X, but only with hardware from RME. This is due to special implementations within the hardware, that aren't available with any other card. RME interfaces are based on RME's own chip design (realized in a FPGA). Because of this you won't find any other card in the market that gives you a Channel Status display, a 100% accurate 24-Bit level meter, a decoding of the CD-subcode, and hardware based RMS calculations.

The Software DIGICheck:

The software is very easy to use, well designed, useful, and includes many valuable options. A detailed online help and technical reference is also included.

In the beginning DIGICheck worked like any other record software, opening one or multiple devices for recording, but not writing the incoming data to disk. Therefore DIGICheck only worked as long as no other record program used the selected devices.

The Functions in DIGICheck:

- Level Meter:

This function provides highly precise level meters with 24-Bit resolution. All parameters like range, resolution and color are completely configurable without limitations in 'Level Meter Setup'. Because of the highly

configurable parameters the Level Meter is ready for a great number of applications:

Peak level measurement

RMS level measurement

Over detection

Measurement of the correlation (phase)

Measurement of dynamic and signal to noise ratios

Display of the difference between RMS and Peak (volume)

Long term peak detection

The peak level (AC+DC) is shown in the inner bars. Every single sample is used for computing Peak level and RMS level. A single sample is sufficient for a 0 dBFS readout. Overs are indicated when more than a user defined count (1 to 20) of consecutive full scale samples occur. A Peak Hold function with adjustable hold time (0.2 s to 100 s) is also implemented.

The RMS level (only AC) is shown in the outer bars. The reference (0 dBFS) is a sine with digital full scale level. This allows easy comparisons of RMS and Peak with usual signals. The RMS display is based on a mathematical true calculation of the root mean square, and will therefore display highly (!) accurate values.

Thanks to 24-Bit the meters break down the lower barrier. Finally you are enabled to see the real dynamics of your equipment! And we don't make jokes: The RMS levels shown from DIGICheck equal exact (!) the values measured by 10.000\$ audio measurement systems! To be more specific they equal RMS unweighted, which means RMS without any special weighting filter. To achieve a better readability at lower noise levels we recommend to set the release rate to 10 dB/s (or to use the Bit Statistic instead, see below).

- **Multichannel Level Meter:**

Besides the 2-Channel level display also an 8-Channel level display is available. This Multichannel Level Meter uses the same settings options as the 2-Channel Level Meter. The bar can be set to display RMS or Peak.

Global Level Meter

DIGICheck's Global Level Meter displays all available channels of the the interface simultaneously. This function is mainly intended as fast overview of current configuration and input signals. Channels with invalid input signals will be greyed out.

- **Level Meter Setup:**

The visible display range can be set between 0 and -160 dBFS. The measurement includes the whole range available from the received audio bit resolution, displayed in 0.1 dB steps. The change in color is defined in 'Warning Level'. Set to 0 dB a color change is only performed on the highest peak hold step - when 'Over' is detected. The number of consecutive full scale samples for an 'Over' indication can be defined between 1 and 20. As the display of a phase relationship makes no sense below a certain threshold the correlator's display will be turned off. The number of LEDs in the Correlation Meter is also configurable in a wide range.

- **Channel Status Display / User bits:**

This function decodes and displays the channel status information contained in the SPDIF signal. In addition the real sample rate is measured with an accuracy of ± 100 Hz. A printing function provides a hardcopy of the channel status.

Even if you're not a super-duper technician you can gain useful information from this table. Incompatibilities among digital devices are explained by a set 'Emphasis' or an active copy protection (field 'SCMS'.) No sound from

the CD-player? Perhaps the CD is full of scratches, showing 'Data Invalid' (resulting in an automatic mute of the DA-converter.)

When connecting a CD-player or a DAT-recorder parts of the subcode (coded into the user bits) will be shown in the 'Validity-Bit' field. The name changes to 'Validity-Bit/CD-Subcode' or 'Validity-Bit/DAT-Subcode' and shows track number, index and current play time. From the DAT's subcode the Start-ID (not track number!) is presented whenever one occurs. Of course ALL information in the subcode may be decoded thanks to the 32 bit mode of the DIGI96 series, but this is only an example. A professional hard disk recording software might use this information when transferring a 2 hour DAT tape into the PC to automatically set markers at the begin of each track (at each Start-ID.)

- **Bit Statistic & Noise:**

This function shows the state of the audio bits. Three states are detected: always low (0), alternating and always high (1.) Alternating means the bit is in use, zero indicates unused bits and permanent one is often caused by a defective AD-converter.

The Bit Statistics allows to determine the real resolution or word length of audio signals, for example at the output of A/D-converters, mixing desks and effects devices. Audio data will be indicated green (normal, bit used), otherwise blue (permanent 0, bit not used). In case of permanent 1 (error or DC) the color changes to red. The normal state of the Channel Status bit and the Validity bit is green, permanent values (red) indicate an error or distorted audio data.

TOTALYSER:

Totalyser: The all-in-one analysis tool

Totalyser is the all-in-one analysis tool, worth a thousand dollars, and free for all RME card users! Totalyser assembles the most important audio meters in one window: a 30-band, 192-kHz capable, widely configurable analyzer, the world's first Goniometer (stereo vector scope) showing the typical afterglow of an oscilloscope tube, and Peak/RMS level meters.

Spectral Analyser and Goniometer are part of DIGICheck for Windows since version 3.0. DIGICheck is easy to use and includes an extensive english online help.

The Analyser:

This professional and unique 30-band analyser uses extensive DSP routines as native software code - at a sensationally low CPU load.

As opposed to nearly all current PC-based solutions no FFT (Fast Fourier Transform) is used. This method offers no useable translation of sound into vision. The 'bands' of a FFT have a constant frequency distance, which results in the higher area in numerous bands, in the lower frequencies in very few bands. Some manufacturers try to work around this problem, but even then a sine will show a non-symmetrical display, and an insufficient separation between bands.

RME's Spectral Analyser performs a true bandpass filter calculation, as usual in all professional devices (hardware). The frequency distance between the filters is not linear, but scaled according to human hearing. The highly optimized software allows to run a 30 band analyser with 50 dB range, sharp filters and 100 LEDs per band, without driving the computer to its limits. On a Pentium III 600 MHz the CPU load is around 15%, including the unavoidable graphics load! (Update: P4 2.4 GHz less than 2%).

Thanks to its complete digital operation the Spectral Analyser offers features previously unavailable from analog analysers. These features include freely adjustable rise and release times, a display configurable in

many ways, different filters and special display modes. Thanks to the high calculation accuracy of modern CPUs, the Analyser will show levels precisely down to a jaw dropping -140 dBFS.

Notes on Operation:

The most important application using a Spectral Analyser is the visualization of frequencies and levels found in music or speech. What you see is what your hear! The Analyser shows levels and frequencies even at the edge of the human ear's abilities. The visual display helps to train your ears, and avoids serious mistakes when mixing to the master tape. Usual studio monitors won't let you hear frequencies below 100 Hz. Simply look on the Analyser to see what's going on in the underground!

Reading the display is not easy for novices, because of the huge amount of information that it shows. But after some training you'll agree that this tool is a precious help in every day work.

More notes on Analysis of Music, Special Display Modes, Sound Measurements, Special Applications and Noise Signals can be found in the extensive online-help of Totalyser.

In order to make level and phase differences between left and right channel visible, oscilloscopes were widely used. The right channel was sent to the X input, the left channel to the Y input, and the tube was turned 45° - ready was a Goniometer. This display can often be found especially in broadcast studios, but also in the post-pro and mastering field. For a long time dedicated devices were very expensive, and were finally pushed aside by Correlation Meters in the mid 80s, which could be manufactured in a much less expensive way. They offer considerably less information, but a phase problem can be easily detected in any case.

In the meantime Goniometers can be found more often again in the form of so-called Vector Scopes, included for free in many software applications. But their quality is, to put it mildly, unsatisfactory. Even those included in expensive 'professional' meter applications have little in common with the original. From our experience, all applications offer quite a bad readability and little expressiveness. After long optimization and implementation of

sophisticated algorithms, we succeeded in creating a native software Goniometer, which not only generates very little CPU load, but also surpasses the visualization of the above mentioned clones considerably.

Goniometer:

The biggest noticeable difference for you as the user is the fast and direct reaction with a maximum of displayed information. Instead of showing chains of single pixels, RME's Goniometer shows continuous (analogue) lines up to a genuine impenetrable woollen ball.

On top, we have not only implemented the typical afterglow of an oscilloscope tube, which is important for an easy readability, but we have also - which is only possible with a computer - made it variable. For both bright pixels (i. e. more recent ones) and darker pixels (i. e. older ones), there are separately adjustable afterglow times.

Only with a professional implementation like RME's, a Goniometer makes sense. You will soon discover that the two-dimensional display, in contrast to a correlation meter, reveals a lot of interesting details, and after a short while of getting used to, yields a sensible and useful support for Level Meter and third-octave Spectral Analyser.

More notes on display of phase, display of level and Automatic Gain Control (AGC) can be found in Totalyser's extensive online-help. There you will also find more information about the other functions of Totalyser and DIGICheck, like the Correlation Meter and the Level Meter.

All together - The Totalyser:

In Totalyser mode, Analyzer, Goniometer, Correlation Meter and Level Meter can be displayed simultaneously, giving you all the information that you need in one view. As in the single modes, you can again select between three different window sizes, small, medium and large

Website: <https://rme-audio.de/steadyclock-fs.html>

SteadyClock FS

About Jitter:

In digital audio, the clock frequency is an essential factor, as it creates the correlation between the audio bits and the time reference. Unfortunately, the clock frequency is not always as stable as desired. Small fluctuations of the clock frequency are referred to as "jitter", measured in nanoseconds (ns). They are the natural born enemy of any digital audio transfer. The effects of jitter on the audio signal are many - from a somewhat rough sound quality to diminished treble localisation to clicks and dropouts in extreme cases. To solve these issues, RME have developed a completely new technology for synchronization and jitter suppression in digital audio signals - SteadyClock.

The Evolution of SteadyClock:

SteadyClock has originally been developed to gain a stable and clean clock from the heavily jittery MADI data signal. The embedded MADI clock suffers from about 80 ns jitter, caused by the time resolution of 125 MHz within the format. Common jitter values are 5 ns, while a very good clock source will have less than 2 ns. Using other input sources like AES, SPDIF, word clock or ADAT, one most probably never experiences such high jitter values.

But SteadyClock is not only ready for them, it would handle them just on the fly. SteadyClock reacts quite fast compared to other techniques. It locks in fractions of a second to the input signal, follows even extreme varipitch changes with phase accuracy, and locks directly within a range of 28 kHz up to 200 kHz.

The SteadyClock technology of RME's latest products guarantees an excellent performance in all clock modes. Its highly efficient jitter

suppression refreshes and cleans up any clock signal, and provides the clock signal as reference clock at the word clock output. At the same time, analog conversion is performed on a guaranteed level of highest quality, completely independent from the kind and quality of the used reference clock. The cleaned and jitter-freed clock signal can be used as reference clock in any application. And the quality of the external (input) clock doesn't matter anymore.

SteadyClock FS - Excellent performance, redefined:

Today SteadyClock is still the same, with a few small improvements in the latest FS version, like even more efficient filtering, and a design based on a super low jitter reference clock. The ADI-2 DAC was the first device in RME's range with SteadyClock FS. There is not much to improve with SteadyClock, it has earned its accolades over years of flawless operation in numerous RME devices, guaranteeing that using the internal clock will produce exactly the same sound as when using an external one. SteadyClock highly rejects jitter and handles all digital interface formats in an exemplary way.

With SteadyClock FS the focus was put on reducing the self jitter of SteadyClock to new lows, by improving its second, analog PLL circuit, and referencing both Direct Digital Synthesis and PLL to a low phase noise quartz crystal. The self jitter measured through DA conversion now reaches levels that usually are only available in master quartz clock mode, while SteadyClock still always runs in PLL mode - no matter if internal or external clock, sound is exactly the same (again). The low phase noise oscillator driving the updated circuit reaches jitter specs lower than a picosecond (ps), an area called FemtoSecond. Hence SteadyClock FS. Pristine signal conversion, with jitter measured much lower than nanoseconds (ns) or picoseconds (ps), in an area called femtoseconds (fs).

Full Range Capture without compromises:

RME Audio has always been completely focused on performance, the company's products are the first choice of audio professionals around the world. Precise German engineering and a relentless pursuit of sonic perfection will ensure the highest quality results — no matter what the application. Capture every Detail & Hear your mix as it is

RME's mic preamps and converters are designed to capture every nuance of a performance, with no added sweeteners. Every detail is captured and no detail is lost. Neutral conversion allows you to hear the performance exactly as it is in the room — giving you the confidence you need that what you hear in the control room will translate to the final product. Digital format conversion in RME products are done without any loss or degradation, and SteadyClock ensures your sonic image will never experience degradation.

In today's music creating environment, users should never have to tolerate sub-standard reliability and performance — whether the goal is to capture a multi-piece orchestra in a commercial recording environment, tracking a world-class halftime show or a demo in a bedroom studio.

RME Audio products are used daily by working professionals in a wide range of different areas. From recording studios, to major broadcast companies, scientific research establishments, high profile live tours, west end theatre productions and national art installations. You can even find RME products in systems monitoring whale movements near off-shore oil rigs! Whether you're in the studio, in the desert, out at sea or at home; you can count on your RME Audio equipment to deliver the quality and reliability you need.

Website: <https://rme-audio.de/rme-usb-technology.html>

RME USB

Transport audio with lowest latency and industry leading stability.

Thunderbolt Or USB 2 Audio Interface?

The subject of which data transfer protocol is most suitable for audio interfaces is an ongoing one. With computer technology in a constant state of change, it can be difficult to predict which format will be permanently adopted. For audio engineers and musicians, this can result in confusion when trying to decide which format is the most suitable for their needs, especially when factoring in the potential for future upgrades to their computer hardware.

Despite the new protocols on the block being championed by computer hardware manufacturers, it is often unnecessary to change to the latest format simply because it is available. In reality, the best format is the one that delivers reliability, accessibility, ease of use, cost, versatility and most importantly, performance.

Future-proof & versatile Connectivity:

USB 2 is the most widely available format. It is found on many of the latest Mac's and PC's, as well as many older models, and is a tried and tested protocol. So, this means that you can use your RME audio interface on Mac and PC, and when you decide to upgrade your computer of choice, you will not be forced in to buying another audio interface. In fact, many RME users will tell you that they have owned their interface far longer than their computer and that RME's commitment to supporting existing, as well as new users, means that firmware and drivers are continually upgraded, even after their products have been discontinued.

Another advantage of USB 2 is the versatility of the connection. Due to the backwards compatibility of USB 3, RME's USB 2 devices continue to work efficiently and reliably when connected to a USB 3 port. So, even as more modern

computers move towards USB 3 ports or even the USB C type, this will not be a problem for USB 2 devices, as a simple adapter can ensure that devices continue to be supported by newer hardware.

Along with this, there are a host of existing devices other than traditional laptops and computers that use USB 2, such as the iPad. RME were the first company to engineer Class Compliant mode on their audio interfaces, a connection that can turn a mobile device into a powerful multi-track recorder in its own right. This means that recording a live gig, a video for YouTube, that great sounding piano at your friend's house, or re-recording a vocal anywhere and at anytime, is incredibly easy.

TotalMix FX for iPad adds full control over hardware mixer and DSP effects for Fireface UCX, UFX, 802, Babyface / Babyface Pro, UFX II, UFX +, MADIface Pro when in Class Compliant Mode and lets users create, store and load complete mixes directly from the iPad.

Tried And Tested Performance:

This would of course be meaningless if USB 2 was unable to perform to a level high enough for recording musicians, both in terms of stability and latency. As is well documented, RME has an excellent and well-deserved reputation for producing outstanding and rock-solid drivers. But what is important to understand is that RME's ability to design and deliver such a high performing range of USB 2 interfaces is in part, due to the fact that they are the only audio interface manufacturer to develop their own USB (and Firewire) technology which, as well as delivering unrivalled reliability, offers the best latency specifications on this format. This is not the case with other manufacturers, who must rely on third-parties.

Up to 70 channels both ways via RME USB 2

One of the suggested advantages of Thunderbolt and USB 3 is the improved bandwidth, resulting in a higher channel count than that of USB 2. On paper, this may seem like an area that USB 2 can't compete. For RME interfaces however, in

reality this is not a problem, as the amount of channels already provided via USB 2 is more than enough for the vast majority of applications. RME's units [can] transfer up to 70 channels both ways via USB 2 in reference to the RME MADIface XT which, when running in USB 2 mode, gives a total of 140 inputs and outputs at 48 or 44.1kHz. RME's other interfaces also manage to provide a high number of channels over USB 2, for example the Fireface UFX II, which provides a total of 30 inputs and 30 outputs at 48 or 44.1kHz, 24Bit.

However, RME do use USB 3 on the RME MADIface XT & Fireface UFX+. As an audio interface format for the mass market, USB 3 makes no sense at all, because the latency is exactly the same as what RME can achieve over USB 2. The higher data bandwidth allows us to transfer more channels, but does not change the smallest buffer size and the reliability when using it with Mac or Windows computers. Which is why we have implemented USB 3 for our RME MADIface XT & Fireface UFX+ interface, used in specific professional situations.

So, in short, RME's USB 2 protocol already delivers more channels than other manufacturers' Thunderbolt formats, and the MADIface XT, with its channel count of 394, is able to out-perform everything on the market via the MADI protocol and USB 3.

Website: <https://rme-audio.de/totalmix-fx-room-eq.html>

TotalMix-FX-Room-EQ

The New ROOM EQ in TotalMix FX

A firmware update provides these RME interfaces with an optimized handling of the existing 3-band PEQ in TotalMix FX. Under the hood a 9-band PEQ is built from three 3-band PEQs, usable on any output channel. Obviously DSP power is limited, so any activated Room EQ reduces the available total number of 3-band PEQs by that amount. That should be no issue though, there are plenty available.

The maximum number of Room EQs is 20, so up to 20 mono output channels or 10 stereo output channels or any combination of these. That's more than needed for a 16 channel surround setup. Additionally the Room EQ window includes Delay, adjustable from 0 ms up to 42 ms, in steps of 0.01 ms. Up to 20 of these delays can be activated, matching the number of 9-band PEQs.

The Room EQ window also offers Volume Calibration through level adjustment from +3 dB down to -24 dB. This helps to set up all speakers in a usable way, without having to fiddle with the respective output channel's fader.

For headphone mixing, we also added the ADI-2 series' Crossfeed function. As known from these devices Crossfeed can be selected in 5 'strenghts', on a maximum of 3 stereo outputs. Crossfeed emulates speaker behaviour in terms of reduced channel separation, so the extreme wide ambiance often experienced with headphones is reduced a bit.

Website: <https://rme-audio.de/totalmix-fx.html>

TotalMix FX

TotalMix FX for Beginners – Video Series

The DSP-based TotalMix mixer allows fully independent routing and mixing of input and playback channels to all physical outputs. Independent stereo submixes plus a comprehensive Control Room section offer unrivalled monitoring capabilities and unsurpassed routing flexibility. Check out this Video Series all about the amazing TotalMix FX features:

1. Routing & Layout Basics:

TotalMix FX mixer interface is very simple and straight forward. On the top row are the Hardware Input channels, the Middle row of faders are your

software outputs. The bottom row faders are your hardware output channels. With the control room section in TotalMix FX you have advanced functions like speaker switching, talkback, cueing and front panel controls will work properly.

2. Snapshots & Workspaces:

Save your TotalMix FX Mixing Sessions with the Snapshots and Workspaces function. Snapshots allows you to store the current mixer settings for recall. With Workspaces you can save all settings as a complete backup, like routing modes, Snapshots or Fader groups.

3. Customizing the Channel Layout:

Like to customize your Interface to enhance your TotalMix FX Workflow? You can easily rename Audio Channels, minimize or hide Channels and save different Layout settings.

4. Recording with RME Audio Interfaces:

In this short beginners Tutorial you will learn how to setup an RME Audio Interface & TotalMix FX for Vocal recording.

5. Headphone Mix:

In this episode of the TotalMix FX beginners guides we take a closer look at headphone mixes.

6. Recording FX with Loopback:

There are two types of effects in TotalMix FX, the channel insert effects namely the EQ and dynamics and the auxiliary effects ie the reverb and the echo. Depending on the effects type the recording process is different. Check out how to record the effects via the Loopback feature very easily.

7. Monitor Mix:

In this episode of the RME Audio TotalMix FX beginners guides we will focus on monitoring in the control room section where all the monitoring takes place.

8. Trim Gains:

This time we will talk about trim gains in TotalMix FX.

9. Channel Groups:

In TotalMix FX we have these so called channel groups. With mute groups you can disable multiple audio tracks at the same time. Solo groups are great, if you want to solo a particular set of all the channels, while all the other audio channels are disabled. Last but not least fader groups let you move multiple channel faders at the same time.

10. Free vs. Submix Mode:

Find out the differences between the submix mode and the free routing mode in this episode of the TotalMix FX beginner's guide. Both routing modes have their pros and cons and depending on your workflow, one might suit you better than the other.

11. Adding FX:

In this episode of the TotalMix FX beginners guide, we will show how you can add reverb or delay to your headphone mixes or main monitor mixes. The reverb and echo effects are send and return effects only and are available on DSP powered RME audio interfaces.

12. Mono/Stereo:

In this episode, we will talk about stereo and mono channels. For a variety of different instruments, we have mono instruments like bass, guitar and electric guitar and we have stereo instruments like keyboards and synthesizers. Find out how to change easily the channel settings in TotalMix FX and split up a stereo channel, into two separate mono channels.

13. DAW Mode:

Since the release of Version 1.30 TotalMix FX comes equipped with an alternative operational mode called the „DAW Mode“. It is essentially a more streamlined and simplified interface for users who don't need the full feature set of TotalMix FX. In contrast to the full mode, the DAW mode leaves the mixing and routing to your Digital Audio Workstation (DAW), by

only providing the input and output channels of your RME Digital Audio Workstation.

14. DSP Effects Overview:

TotalMix FX comes with two types of effects: Insert effects, namely the EQ and Compressor, and Send effects like Reverb and Delay. While the Insert Effects are available on a per channel basis on all input and output channels, the Send Effects are on a separate effects bus.

TotalMix FX for iPad™ App

TotalMix FX for iPad adds full control over hardware mixer and DSP effects for Fireface UCX, UFX, 802, Babyface / Babyface Pro, UFX II, UFX +, MADIface Pro when in Class Compliant Mode and lets users create, store and load complete mixes directly from the iPad.

Features:

Since 2001 TotalMix added unlimited routing and mixing to RME's audio interfaces. Its unique capability to create as many independent submixes as output channels available turned it into the most flexible and powerful mixer of its kind.

With supported hardware, TotalMix FX includes a complete effects system, which not only adds flexibility to the recording chain, but also makes latency saddled software solutions obsolete. TotalMix FX (FX on supported cards) can completely replace an external mixer, enabling the creation of multiple latency-free monitor mixes with EQ, Dynamics, Reverb and Delay for any outputs incl. main monitors and headphone mixes for musicians.

TotalMix FX is included as part of the driver, so after you've downloaded and installed the latest driver and connected your interface, the mixer window will open automatically. If you're new to TotalMix FX, you may find the number of

options available to you somewhat overwhelming at first. Rest assured though, once you get to grips with the basics, you'll find TotalMix FX to be simple, intuitive and incredibly powerful.

RME's Hardware Mixer Features:

- Create Zero latency monitoring mixing
- Create Cue mixes for multiple musicians
- On Board Bus Effects - Reverb & Delay
- On Board Insert FX - EQ and Dynamic
- Built In Control room Section -Cue, flexible Talkback for all Outputs
- Loopback Feature - allows custom input mixes to be recorded as separate input to your DAW
- Configurable Mono and Stereo Channels
- Improved Graphics including Zoom States and Brightness Control
- Remote Control with OSC or Mackie Control
- Multiple Client Remote Support
- Mute, Solo and Fader Groups
- Volume recall
- External Input
- Local and global TrimGains/Post support with Exclusion
- Hide channels in Mixer GUI, Mackie control and/or OSC
- 2 Row mode
- Assignable F-key Commands
- Mixer snapshot and workspace files
- compatible with Mac and PC and iOS
- Matrix with Mono/Stereo mode
- PFL mode

New Fireface Series ROOM EQ - Say goodbye to unwanted Room Resonances

RME's TotalMix FX software now comes equipped with the revolutionary Room EQ feature available as a free update for users of the Fireface UFX+, UFX II, UFX III and UCX II. Elevate your audio experience like never before

with precise Room Calibration tools on up to 20 audio channels – 9-band PEQ, Delay, Volume Calibration and Crossfeed - all powered by your RME audio interface's on-board DSP (so zero added strain on your Mac or PC). Whether you're working in Stereo, Surround or Immersive Audio formats, say goodbye to unwanted resonances and hello to your new finely-calibrated monitoring environment.

TotalMix FX Effects

- TotalMix FX comes with two types of effects: Insert effects, namely the EQ and Compressor, and Send effects like Reverb and Delay. While the Insert Effects are available on a per channel basis on all input and output channels, the Send Effects are on a separate effects bus.

Snapshots, Groups & Workspaces

- The Snapshots section of the right side control panel allows you to store the current mixer settings for recall. The area Groups provides 4 storage places each for fader, mute and solo groups. The groups are valid per Workspace, being active and usable in all 8 Snapshots.

Two different View Modes:

- TotalMix FX has 2 different view modes, the mixer, which is default, and a matrix view. You can switch between the modes in the Function menu at the top of the screen or window. Alternately, you can hit the X key on your keyboard for the Matrix, and M key to switch back to Mixer view.

Control Room Section:

- If you have additional headphones outputs, you can assign up to 4 mixes as headphones. These will all receive the Talkback signal when activated. Or use advanced functions like speaker switching, cueing and front panel controls. If you use 2 sets of monitors for comparison, you can set this up in the control room.

Loopback Feature

- Loopback is a special and very useful feature in TotalMix FX. With Loopback, you can take output of one software program, and send this back as an input signal for a different software program. Or you can create a mix of input signals, playback signals, or both, and send this back as a stereo input for recording. It works just like plugging a cable from an output channel to an input channel, except it all happens inside TotalMix and therefore works completely transparent.

ARC USB Remote Control

- The ARC USB is a powerful and freely assignable remote for complete control over TotalMix FX. It is the successor of the ARC MK1 and thanks to its new layout and vastly expanded hardware controls you get quick access to the most common functions of TotalMix FX and RME Audio Interfaces.

TOTALMIX REMOTE:

RME's latest software, TotalMix Remote enhances the power of RME interfaces by enabling remote control via iOS, PC or Mac. With a straightforward set up process — simply enter the IP address of the computer you would like to control with TotalRemix Remote and get going — users can quickly adjust any aspect of TotalMix FX on a host system while walking around the studio with their tablet, or from a control room located elsewhere in the facility. The remote software mirrors the exact state of the host system, including the entire display of the interface, the current input and output routing, and all settings including level meters.

A quick and seamless network solution

Because TotalMix Remote is TCP-based, it minimizes the burden on both the remote client and the host and boasts a very low system load and minimal

latency, besting browser-based network solutions in performance. Even using standard WiFi, TotalMix Remote works quickly and seamlessly, handling rapid fader movements without lag. TotalMix Remote is also compatible with RME's popular ARC USB, a usb-based remote control with a rotary wheel and 15 freely programmable illuminated buttons.

A powerful way to control your RME system

On the move, manage multi-device, multi-host workflows, or even allow users to tweak their own monitor mixes, the possibilities of TotalMix Remote are numerous and further expand the functionality of the industry's most capable recording interfaces.

Additional Information on Network Remote Quick Guide to TotalMix Remote

TotalMix Remote is a remote control for TotalMix FX v1.50 and up, to control the hardware mixer and effects in RME audio interfaces. TotalMix Remote mirrors the current state of the host system on the iPad and Windows/Mac computers - the entire mixing state, the complete routing, all FX settings, up to the level meters, and everything in real-time. TotalMix Remote supports up to three hosts with multiple interfaces each, allowing Apple's popular iPad and Windows/Mac computers to adjust all the mixer and FX settings from a distance, via Ethernet and WiFi.

Supported Hardware - Limitations

Supported hardware: TotalMix Remote communicates with TotalMix FX 1.50 or up. Any RME hardware that can be used with TotalMix FX is supported automatically.

- Mixer View & GUI - When connected the remote computer / iPad will immediately have the complete routing and FX settings of the host, including mono and stereo channels, but not the host's GUI setup, like panel states open/closed of Settings/EQ/Dynamic, FX panel visibility, 2-Row or 3-Row mode and channel width. Channel width states can be stored as usual per Snapshot and completely as Workspace, locally on the remote computer. They need to be

loaded manually after loading a Workspace on the host in case a 100% identical view is required.

- Workspaces - the Remote shows the Quick Workspaces (hotkey W on Windows/Mac) stored on the host, and allows to remotely load them. It is not possible to save complete Workspaces with mixer state from the Remote, or on the Remote. The Workspaces saved locally include GUI information only (Channel state wide/narrow, Channel Layouts, window size and position) and further local settings, to be able to have personalized views on the remote computer, independent from the view on the host.
- Real-time behavior - can suffer when the network is overloaded or the WiFi reception is insufficient. Level Meters will stutter then and faders do not move smoothly.
- Background operation on iPad - is not possible. This should not be a problem as the Remote doesn't need to do anything in background, and when called up very quickly reconnects and synchronizes its state.
- State - is shown in the upper right corner (offline or connected), or the Mac/Windows title bar.

TotalMix FX Remote – Quick Start Guide

1. Download and install TotalMix Remote on the **Remote computer (or iPad)** you want to control your interface from.
2. On the Host computer (the one which your interface is connected to), open TotalMix FX and select Options from the program's file menu, then select Network Remote Settings (on a Mac), or Host Connection Settings on Windows. This window will also provide you with the Host computer's IP address.
3. Check that the Enable TotalMix Remote Server box is ticked. On Windows, you will also see a Firewall warning – make sure you allow TotalMix Remote.

4. Make sure that both the Host and Remote computers / iPad are on the same network, then open TotalMix Remote*. A dialog box should open automatically (for entering the IP address and port number), but if it doesn't you can also click on the Search Connected Hosts option.

*On an iPad, tap on the gear symbol in the upper right corner, then on Host Connection Settings.

5. In the resulting dialog box, type in the Host computer's IP address (e.g. 192.168.0.101), and make sure that Activate is ticked. The port will usually default to 7009 (and should be left as this), however if the port is occupied for some reason an error message will show, in which case simply choose a different port. This will bring up an additional Firewall warning – again, allow TotalMix Remote to enable it.
6. Click Done or OK, and TotalMix Remote will open within a few seconds. You are now free to control your audio interface from your Remote computer or iPad!

Tip

The remotes have the option Sync Channel Layouts active as default (in Preferences). This option transfers the Layout Presets and the current Channel Layout state from host to remote. Apart from the channel width state this option makes a mirror-style setup most easy. But when using the remote as individual setup, make sure to disable this option to have independent Layout Presets on the remote.

Website: <https://rme-audio.de/knowledge-base.html>

Knowledge Base

RME Audio Technology explained

Glossary:

48K Frame:

- Most often used MADI format. Supports up to 64 channels at up to 48 kHz.

96K Frame:

- Frame format for up to 32 channels at up to 96 kHz. The advantage of this format against 48K frame using S/MUX: the receiver can detect the real (double) sample rate on its own, immediately. With 48K Frame and S/MUX, the user has to set up the correct sample rate for all connected [MADI devices](#) manually.

TECH INFO:

RME USB - Transport audio with lowest latency and industry leading stability

- As part of RME's product philosophy, we always further develop and optimize our core technology. RME have paved the way for multichannel audio and were the first to deliver professional performance over USB 2.0.
- We place a high level of attention on the development of reliable, stable, and regularly updated drivers for our products and an unwavering focus on audio quality. This guarantees your RME Audio Interface will be never outdated and always updated. And because RME Audio develops its own interface core, it's not dependent on 3rd parties for upgrades, modifications or bug fixes, so customers can use latest operating systems without interruption or delay.

DigiCheck - The Secret Weapon of High Resolution Audio Measurements

- RME's unique software tool box for metering, testing, measuring and analyzing digital audio streams. 2, 8 or all channel level meters with countless options. Spectral Analyzer, Goniometer and Bit Statistics in professional quality. Even Channel Status readouts are possible. Under

Windows DIGICheck also offers a global record function and the direct readout of playback data. Available for free download from RME's Website.

AutoSet - Automatic gain reduction and overload protection technology

- Usually a limiter is used during the recording to prevent clipping of the A/D converter stage. But analog processing would not only spoil the excellent technical specifications of mic preamps but also alter the original sound.
- Thanks to the completely digitally controlled gain, devices with AutoSet can reduce the gain automatically, thus providing perfect protection from overload with no degradation of the audio signal, which does not have to pass any additional electronic circuitry. AutoSet also does not cause any of the control noises known from usual limiters.

(DUREC) - Direct USB recording for all Inputs and Outputs

- DUREC is an integrated digital recorder for all inputs and outputs directly to USB memory devices via the front USB port. The Fireface UFX+ and Fireface UFX II records on USB thumb drives or hard drives with up to 2 TB capacity. The recording functionality is provided by the internal DSP, and is therefore independent from a connected Windows or Mac computer.
- The Direct USB Recording converts the Fireface UFX Series both into a stand-alone field recorder and a powerful multichannel live player for previous recordings, e. g. for virtual sound checks. Live concerts, band rehearsals or spontaneous jam sessions can be directly recorded and played back from the medium - even completely stand-alone without computer or software. All 60 input and output channels can be individually chosen for recording and playback.

SteadyClock FS - Full range capture without Compromises

- RME's jitter suppression technology guarantees perfect sound quality throughout, making the device completely independent from the external clock signal's grade. Due to the highly efficient jitter reduction, the

converters operate as if they are working with internal clock all the time - guaranteeing a pristine sound experience!

Class Compliant Mode - Professional analog I/O connections for iPad

- The Class Compliant mode is a standard that is natively supported by operating systems like Windows, Mac OSX and Linux distributions. No proprietary drivers are required, the device will be directly recognized when the CC mode is activated by the button on the front panel.

MADI the Primary Alternative Multi Channel Digital Audio Protocol

RME Audio products are known for their reliability and their unique feature sets. Acknowledged by professional users and hobbyists alike, their digital interfaces and analog converters capture, transport and play back audio with exceptional quality - for which they have received numerous awards. After having also been included in many scientific and industrial applications, RME has set a standard much talked about whenever the focus is on uncompressed, high quality audio.

MADI is a protocol that has evolved alongside RME to be the most widely accepted multi channel digital audio protocol on the market. It has been written for anyone who is new to the technology or who feels the need to know a bit more about how MADI may be used to create or extend audio systems for their specific requirements.
