

12G/6G/3G/HD/SD/ASI Routing Switcher

MFR-4000



FOR.A[®]
INNOVATIONS IN VIDEO
and AUDIO TECHNOLOGY

12G/6G/3G/HD/SD/ASI ROUTING SWITCHER
MFR-4000



12G-SDI compatibility across all 72 inputs and 72 outputs brings powerful support to 4K and 8K routing

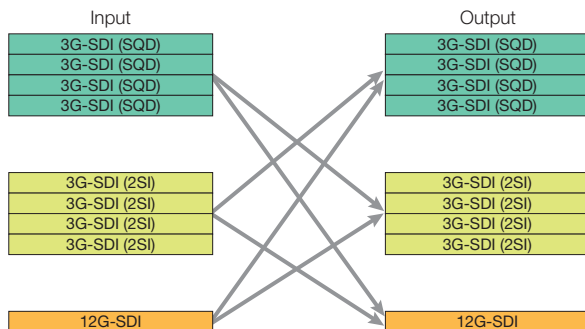
Add up to eight I/O cards, with nine channels per card. Configure a matrix of up to 72 x 72 inputs and outputs. Building on solid MFR series performance, the MFR-4000 inspires confidence in management through redundancy and easy maintenance. What's more, when adding a 4K matrix with 3G-SDI routers, 12G-SDI support enables single-cable transfer of 4K video without complex cabling and fewer channels. Take advantage of the space saved by reducing cables.

12G-SDI Support

Conventional 3G-SDI routing switchers require 4 crosspoints for input and output of 4K video. With 12G-SDI, 4K can be carried over a single crosspoint. The MFR-4000 also determines the type of SDI input automatically—no need to worry about what signals are supplied.

12G-SDI

Gearbox Functionality



4K conversion (12G-SDI/quad link 3G-SDI, 2SI/SQD)
Add the MFR-2SDIGB and MFR-2SDOGB cards for conversion of video (quad link 3G-SDI/12G-SDI) and mapping (2SI/SQD) formats. These options open the door for equipment previously incompatible with 12G-SDI, enabling system building focused on this new specification.

Solid Performance in Seven Features

Multi-format video input and output

Support for 12G/6G/3G/HD/SD-SDI and DVB-ASI input and output. No need to worry about signal formats, thanks to auto signal detection.

Outstanding redundancy

As core system components, FOR-A routing switchers can incorporate redundancy to ensure nonstop operation in case of problems.

- Redundant CPU board (optional MFR-CPUA)
- Redundant power supply (optional MFR-PSA)
- Router linkage: Parallel operation of two routing switchers ensures matrix redundancy and enables quadruple redundancy of the power supply unit and CPU board.

SNMP monitoring

Can be integrated into an SNMP monitoring system. Enables monitoring of various operational states, such as power, fan, and CPU status, SDI signal input or output, and crosspoint errors. If system failure and recovery occur, SNMP traps are sent to managers.

GUI-based configuration

A built-in webserver enables immediate setup without installing software on external devices. Via this interface, settings can also be configured in an offline environment.

Versatile crosspoint control

Besides typical crosspoint switching, the unit enables a variety of crosspoint control.

- Salvo ■ Take ■ Link ■ Error-proofing (Inhibit, Lock)

Interface expansion units

Three types of interface expansion units are available to suit specific applications.

- MFR-TALM: Tally Manager
- MFR-RULINK: Remote Control Relay Unit
- MFR-GPI: GPI Unit

Connectivity with other products

Can be remote-controlled through the Ethernet or serial ports. Compatibility with common protocols such as TSL and Harris enables tally linkage or auto source name tracking for crosspoint switching. As well as our exclusive interface to the FOR-A line of HVS production switchers and standalone multi viewers.




Optional




Video I/O Cards




	Input Cards		
	MFR-9SDI12G	MFR-8SDIEX	MFR-2SDIGB
Supported formats	12G/6G/3G/HD	3G/HD/SD/DVB-ASI	12G/3G
BNC	9	8	8
Ports supporting 12G-SDI	9	0	2
Gearbox (12G/3G-SDI interconversion)	0	0	2

	Output Cards		
	MFR-9SDO12G	MFR-8SDOEX	MFR-2SDOGB
Supported formats	12G/6G/3G/HD	3G/HD/SD/DVB-ASI	12G/3G
BNC	9	8	8
Ports supporting 12G-SDI	9	0	2
Gearbox (12G/3G-SDI interconversion)	0	0	2

Remote Control Units

Basic models	MFR-16RUW	MFR-32RUW	MFR-64RUW
			
Size	1RU	1RU	2RU
Buttons	16 (green)	32 (green)	64 (green)
Features	16 customizable buttons	32 customizable buttons	64 customizable buttons

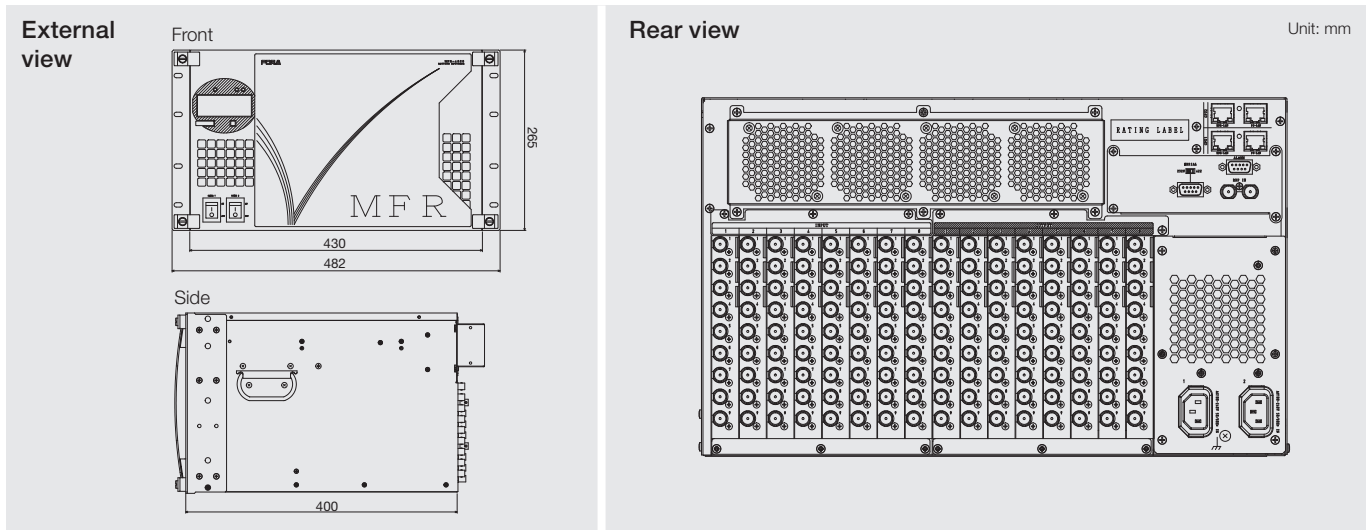
Standard models	MFR-16RU	MFR-16RUD	MFR-40RU
			
Size	1RU	1RU	1RU
Buttons	16 (green)	16 (green)	40 (red/green/orange)
Features	16 customizable buttons	<ul style="list-style-type: none"> • 16 customizable buttons • Equipped with a status/setting menu display 	<ul style="list-style-type: none"> • All buttons are customizable • Redundant power supply (AC adapter)

Full-featured models with display	MFR-18RUA	MFR-39RUA	MFR-16RUTA
			
Size	1RU	2RU	2RU half tabletop
Buttons	18 (red/green/orange)	39 (13 x 3 rows)	16 (red/green/orange)
Features	<ul style="list-style-type: none"> • Buttons feature an OLED display that can show source names or assigned functions (7 colors: W, Ye, Cy, G, Mg, R, B) • All buttons are customizable • Redundant power supply (AC adapter) 	<ul style="list-style-type: none"> • Buttons feature an OLED display that can show source names or assigned functions (7 colors: W, Ye, Cy, G, Mg, R, B) • 6 customizable function buttons (3 colors: R, G, Or) separate from main buttons • Equipped with a display showing information on current sources, destinations, and pages • Ideal as a main control unit covering the entire crosspoint setup • Redundant power supply (AC adapter) 	<ul style="list-style-type: none"> • 16 customizable buttons • Buttons feature an OLED display that can show source names or assigned functions (7 colors: W, Ye, Cy, G, Mg, R, B)

Specifications

Video formats	12G: 2160/59.94p, 50p 6G: 2160/30p, 29.97p, 25p, 24p, 23.98p 3G: 1080/60p, 1080/59.94p, 1080/50p HD: 1080/60i, 1080/59.94i, 1080/50i, 1080/30p, 1080/30PsF, 1080/29.97p, 1080/29.97PsF, 1080/23.98p, 1080/23.98PsF, 1080/25p, 1080/25PsF, 1080/24p, 1080/24PsF, 720/60p, 720/59.94p, 720/50p SD: 525/60, 625/50
Matrix size	Min. 9 x 9 - Max. 72 x 72, expandable in 9-I/O increments
Video inputs (optional)	Digital video input compliant with the following (75Ω, BNC) MFR-9SDI12G SMPTE 2082 (12 Gbps), SMPTE 2081 (6 Gbps), SMPTE 424 (3 Gbps), SMPTE 292 (1.5 Gbps) MFR-8SDIEX SMPTE 424 (3 Gbps), SMPTE 292 (1.5 Gbps), SMPTE 259M (270 Mbps), DVB-ASI MFR-2SDIGB SMPTE 2082 (12 Gbps), SMPTE 424 (3 Gbps)
Input cable equalization	3G/HD-SDI: 100 m (using 5C-FB or equivalent cable: Belden 1694A) SD-SDI: 200 m (using 5C-2V or equivalent cable: Belden 1694A)
Video outputs (optional)	Digital video output compliant with the following (75Ω, BNC; with auto reclocking) MFR-9SDO12G SMPTE 2082 (12 Gbps), SMPTE 2081 (6 Gbps), SMPTE 424 (3 Gbps), SMPTE 292 (1.5 Gbps) MFR-8SDOEX SMPTE 424 (3 Gbps), SMPTE 292 (1.5 Gbps), SMPTE 259M (270 Mbps), DVB-ASI MFR-2SDOGB SMPTE 2082 (12 Gbps), SMPTE 424 (3 Gbps)
Genlock input	BB: NTSC 0.429 V (p-p)/PAL: 0.45 V (p-p) or Tri-sync: ±0.3 V (p-p), 75Ω, BNC x 1, with loop-through (to be terminated with 75Ω terminator, if unused)
Interfaces	MFR-LAN 10/100/1000Base-T, RJ-45 x 2 (max.) (Connected to MFR series products. Up to 128 units can be connected.) (Second port only used in MFR-CPUA configurations.) PC-LAN 10/100BaseTX, RJ-45 x 2 (max.) (Connected to a computer or external device) SERIAL RS-422 9-pin D-sub (male) x 1 (can be ordered as RS-232C, using an internal switch) ALARM 9-pin D-sub (female) x 1 (Input: reset/Output: alarm (power, fan, crosspoint, CPU))
Router linkage	Maximum: 8
Temperature/humidity	0°C to 40°C/30% to 85% (no condensation)
Power	100 V to 240 V AC ±10%, 50/60 Hz
Consumption	Approx. 490 VA (at 100 V AC, in a 72 x 72 configuration with a redundant CPU and power supply)
Dimensions/weight	482 (W) x 265 (H) x 400 (D) mm, EIA 6RU/30 kg (with all options installed)
Included accessories	Operation manual (CD-ROM), AC cord, rack mount bracket, AC cord retaining clip
Consumables	Power unit: Replace every 5 years Fans: Replace every 4 years
Options*	MFR-GPI: GPI unit MFR-TALM: Tally manager MFR-RULINK: Remote control relay unit MFR-CPUA: Redundant CPU card MFR-PSA: Redundant power supply unit

* See "Options" for details on remote control units and video I/O cards.



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